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Abstract

My project involves looking at the metaphysics of possibility. There are two questions that are central to the metaphysics of possibility: firstly, what are possible worlds and secondly, is there an empty possible world. Possibilist and actualist accounts of worlds attempt to answer the first question while discussions of metaphysical nihilism, the empty world and the modal ontological arguments deal with the second. However no one has systematically considered how the answers given to one of these questions affect the answers available to the other - this is my project. I develop a new way of categorising theories of possible worlds. I argue that metaphysical nihilism (the claim that there could have been nothing), in all its published forms, is incompatible with each of the fully worked out, robust accounts of possible worlds available. I point out the importance of using the correct criterion of concreteness in discussions of metaphysical nihilism. I argue that if we modify the account of abstract objects used by the metaphysical nihilists, then nihilism can be shown to be compatible with the ersatz account of possible worlds. Finally, I argue that given these considerations, Lowe's arguments against the nihilist are more plausible than nihilism itself.

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THE METAPHYSICS OF POSSIBILITY: COULD THERE HAVE BEEN NOTHING?

By

Geraldine Philomena Coggins

Submitted for the degree of Doctor of Philosophy at the
Department of Philosophy, University of Durham

2002



21 MAY 2003

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Declaration

None of the material in this thesis has been submitted before for a degree in this or any other university. The results reported are those of the author unless otherwise stated.

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1 INTRODUCTION

Most true statements are true in virtue of how things are. There is some aspect of the world, which they give an accurate representation of and this is what makes them true. For example, 'it is now raining' is true because it is now raining. This much is widely accepted, even assumed in both philosophical and non-philosophical discourse. However, there are some statements which we believe to be true but which do not correspond in this simple way to how things are. Statements of possibility are an example e.g. 'it could have been sunny now'. This is true but its truth cannot be explained by the way the weather is. If some aspect of how things are can account for the truth of this proposition then it is not in the straightforward way that the truth of 'it is now raining' is explained by its now raining. The problem that philosophers of modality face is how we can explain the truth of these statements of possibility.

1.1 The structure of the thesis

My thesis deals with the metaphysics of possibility and necessity. I consider two key questions:

- (i) What is it for something to be necessary or possible? What are possible worlds? In answering this question I look at the competing accounts of possible worlds.
- (ii) Is it necessary that something exists? Is there an empty possible world? In answering this question I will look at the arguments for and against metaphysical nihilism.

This introductory chapter will deal with the background and framework for the debate.

The body of the thesis breaks down into two main parts. In the first part (chapters two and three) I will consider the first question of what it is that makes statements of possibility, necessity and contingency true. According to the standard possible-world analysis of modal claims, a proposition *P* is possible if and only if there is a world at which *P* is the case. However it is far from clear what these worlds are. In this first part I will be looking at the metaphysics of these possible worlds. In chapter two (Possibilism) I will be looking at arguments for and against believing in possibilism and raising some problems for both. In chapter three (Actualism) I will be looking at the nature of actualism and how it deals with some of the philosophical challenges facing it. I will also look at two specific forms of actualism – linguistic ersatzism and modal fictionalism – and consider how they deal with modal claims, especially how they deal with my question (ii). In both these chapters I will not be arguing for any specific account of possible worlds (although I will be arguing against some specific accounts), I will be laying out some of the main issues in order to give some background to the later chapters.

In the second part of the thesis (chapters four, five, six and seven), I deal with the second question. I will look at whether or not one particular modal claim is true. This is the claim that there could have been nothing. On the standard analysis of modal statements we can translate this claim into: there is an empty possible world. In chapter four (The Subtraction Argument) I will outline the subtraction argument (the main argument for metaphysical nihilism) as it stands and will make some criticisms that will be used later. In chapter five (World and Object) I will suggest a new way of categorising theories of possible worlds and will argue

that none of the published versions of the subtraction argument are compatible with a fully worked out, robust account of possible worlds. In chapter six (Metaphysical Nihilism) I will argue that the proponents of metaphysical nihilism have been using an inappropriate criterion of concreteness in their arguments and develop an appropriate criterion. In chapter seven (Can We Save the Subtraction Argument?) I reconstruct an argument for metaphysical nihilism using the appropriate criterion of concreteness. I conclude that Lowe's anti-nihilist arguments are more persuasive than those of the nihilists.

1.2 The themes of the thesis

My main claim is that the proponents of metaphysical nihilism have not given sufficient support to their position. The reason for this is that they sought to consider the second of my two questions (is there an empty possible world?) largely in isolation from my first question (what are possible worlds?) This led them to write an argument for nihilism (the subtraction argument – an answer to question (ii)), which is not compatible with the fully worked-out, more robust accounts of possible worlds (the answer to question (i)).

As well as these specific claims I will offer two more general arguments. These will be implicit in the arguments that follow and will also be made explicit here and in some other sections of the text.

The first of these is that these two questions need to be considered not singly but as two inter-related issues. In chapter six I discuss which if either of them should be considered to be primary or foundational and conclude that finding some sort of reflective equilibrium between them is desirable. This is illustrated (a) in chapter five where I argue that the current versions of the subtraction argument

incur problems by considering the nihilist's question without reference to the possible worlds question and (b) in chapter three where I argue against reductionist versions of linguistic ersatzism on the ground that they are not robust enough to be able to deal with the question of nihilism.

My second theme is about ontological parsimony. I argue against the unreflective use of principles of ontological economy in the study of ontology itself. This is argued for in chapter two where I defend Lewis from what I show to be inappropriate uses of Ockham's razor. We should also look out for other types of problematic ontological commitment. For example, I have shown elsewhere that Baldwin's and Rodriguez-Pereyra's criteria of concreteness rule out the existence of haecceities.¹ There is no direct connection between the issues they are discussing and the existence of haecceities except that they are incompatible. This means they have no reasons for denying the existence of haecceities that are explicitly about haecceities. So this is another type of ontological commitment we have to be aware of and approach with a critical mind. Ontological commitment is controversial not just when it involves commitment to the existence of many objects or kinds of objects but also when a theory commits us to the non-existence of an object but without arguments that are about that type of object.

I will point out these themes again when they occur in the main text of the thesis. These are not mere assertions or background suppositions of my arguments. Rather I think they are the conclusions of arguments that are implicit and in places explicit in what follows.

¹ Coggins, G., "World and Object: Metaphysical Nihilism and Three Accounts of Worlds," *Proceedings of the Aristotelian Society* (2003 forthcoming).

1.2.1 Issues which are not discussed in the thesis

There are several other philosophical debates that have consequences for the issues I am discussing. In order to stay focused on what is most relevant to my arguments I cannot engage in these debates. However, they may be relevant in a broader sense and so I should at least acknowledge that here.

The first of these is the question of the correct modal logic. Baldwin's arguments require a modal logic at least as strong as S4. If something weaker than S4 is the correct modal logic then the reconstruction of the subtraction argument that I give in chapter 7 may be more problematic than we thought. However it would be no more problematic than the versions given by Baldwin and Rodriguez-Pereyra. Also many or even most philosophers are happy to accept S4 or an equivalent or stronger modal logic. This means I am not attaching my arguments to any particularly radical or implausible view.

Secondly there are the questions about the nature of metaphysical necessity and possibility as opposed to logical possibility or necessity. If anything that I say is not agnostic about this distinction then it is metaphysical necessity that I am referring to. I am not going to give arguments to show that metaphysical necessity is a distinct modality from logical. Plenty of arguments for (and against) this view are already available.² I mean what Kripke means when he discusses metaphysical necessity and possibility.

A third debate that I touch on but don't give arguments for either side, is the relationist versus absolutist accounts of space and time. I do take into account

² See Hale, B., "Absolute Necessities," in *Philosophical Perspectives* 10, ed. Tomberlin, J. E. (Oxford: Blackwell, 1996), Kripke, S., *Naming and Necessity* (Oxford: Blackwell, 1980), Lowe, E. J., *The Possibility of Metaphysics Substance, Identity, and Time* (Oxford: Clarendon Press, 1998) 13ff, Plantinga, A., *The Nature of Necessity* (Oxford: Clarendon Press, 1974) 1-9.

Rodriguez-Pereyra's criticism of Baldwin for assuming an absolutist account. I think it is reasonable to criticise a view that turns on such a controversial assumption. Where the issue is relevant I consider both views so that none of my arguments are dependent on either one or the other being right. My criticisms of the container view of worlds for assuming absolutism do not entail that absolutism is wrong. Rather I want to point out exactly how far reaching and philosophically controversial the ontology of the container view is. I am not saying that absolutism is wrong but merely pointing out that the container view relies on absolutism being right.

Fourthly, Rodriguez-Pereyra and Lowe disagree over the question of the infinite divisibility of material objects. As in the case of relationism and absolutism, I give parallel arguments based on each assumption, rather than giving an argument for one side or the other. The question is not central to any of the issues I am discussing and to make an assumption on either side would be a concession to those philosophers on the other side and a reason for them to reject my arguments. I believe that my arguments are stronger because of this agnosticism rather than weaker.

The argument between mathematical fictionalists and their opponents is touched on in chapter 7 but I do not give arguments on either side. A mathematical fictionalist would object to Lowe's argument. But if I objected to Lowe on this basis it would neither be original (as Field already holds this position) nor convincing (as few others share Field's philosophy of mathematics).

1.3 The framework for the debate

Modal claims are claims about possibility and necessity. In philosophy we talk a lot about whether something is necessarily the case and whether or not something is possible. But like all the distinctions we use in philosophy, at some stage we have to look at philosophical problems associated with these phenomena themselves. The introduction to a thesis about the metaphysics of modality seems like a good place to do this. If our notions of modality are confused or misleading we can, at worst, give up now or at best, clarify which issues need to be concentrated on and sort out the pseudo problems from the serious philosophical worries.

1.3.1 Could things have been different?

In what I have said so far I have assumed that things might have been different. But we can't uncritically assume that this is true. On the face of it you might want to say that the world could not have been different at all. (This view is sometimes called Spinozism after Spinoza³ who believed that this world is the only world that is possible.)

This line of reasoning might for instance be motivated by determinism. If everything is determined by the laws of physics then surely nothing could have been different. The way things are is the only way things could be. But is this really a sensible view? I think not. It seems to me that there are at least two ways in which the universe could have been different. Firstly the laws of physics could have been different. Perhaps there could have been no gravity or causation could have run backwards. Causation could have not been there at all; there could have

³ Spinoza, B., *Ethics*, trans. Hale White, W. (Oxford: Oxford University Press, 1927) 9-13.

been pure 'anarchy' with 'spontaneous' events occurring for no reason. Of course we know that the universe is not like this but the only reason it is not is because of the laws of physics that we actually have. We are considering the possibility that these laws could have been otherwise. Naturally a universe with such radically different laws from our own might not be able to support human life or even to exist for very long but it might be possible. So one way in which things could have been different is that there could have been different laws of physics. We cannot argue against this claim by citing determinism because determinism, if it is true, is part and parcel of the actual laws of physics and we are considering the claim that these laws are not necessary.

The second way that things could have been different is that it could have been the case that the actual laws of physics held but the universe could have had different initial conditions. At or immediately after the time of the big bang the universe was in a certain state. It occupied a certain amount of space; the occupants of this space were at different temperatures and so on. But surely these conditions could have been different. The big bang could have been a bit smaller or larger meaning the resultant universe could have contained more or less energy than it actually does. So even if the laws of physics were the same as those in the actual world, the initial conditions of the universe could have been different meaning that the resultant universe would be different. Even if our laws of physics are necessary, if the initial conditions of the early universe were different then the later stages would surely be different too. This possibility is described clearly in the following:

The divine tape player holds a million scenarios, each perfectly sensible. Little quirks at the onset, occurring for no particular reason, unleash cascades of consequences ... But the slightest early nudge contacts a

different groove, and history veers into another plausible channel, diverging continually from its original pathway. The end results are so different, the initial perturbation so apparently trivial.⁴

So it seems like we have good reason to reject Spinozism and accept that things could have been different.

1.3.2 What do these questions mean?

To a non-philosopher or even some philosophers, the two questions I am discussing might sound meaningless, unanswerable or just confused. So those of us who think that these questions are worth answering need to justify that belief and explain exactly what those questions mean.

Question (ii) in particular needs clarifying. It is sometimes rendered as 'why is there something rather than nothing?' 'Could there have been nothing?' or 'why is there anything at all?' I think that the version I have used is less open to misinterpretation and confusion than these other versions. One way to work out exactly what the question is, is to specify what the question is not. Question (ii) is not any of the following questions:

Why do humans exist? Where did humanity come from? How come the universe evolved in such a way as to allow life? This group of questions are about us as a species or living things in general. It is a much more specific question than the one at hand. This question might be answered by a version of the design argument. This takes as premise the fact that *life* exists and asks why. My question in contrast, accepts that *something* exists and asks why.

⁴ Gould, S. J. *Wonderful Life* quoted in Simons, P., "Whose Fault? The Origins and Evitability of the Analytic-Continental Rift," *International Journal of Philosophical Studies* 9 (2001): 295.

Is there a God? Was the universe deliberately created? A creator of the universe, if there is one, would be a very good candidate for being a necessary being. If there was a necessary being it would give a (positive) answer to question (ii). However, there are also other candidates for necessary existence. For example, we could claim that the universe itself is a necessary object. Hence, if this question were to be satisfactorily answered in the positive it would probably provide an answer to my question (ii). But there may be other objects, rather than a God who could also fulfil this function and to concentrate on any one would be to unduly limit the prospects of an answer. Also, if we give a negative answer to question (ii) we would be forced to give a negative answer to the God question (or else deny that God is necessary).

Now that we've established what we're not talking about it should be easier to work out what we are talking about. The question I am addressing is whether there could have been no concrete objects. In possible-world-speak this becomes 'is there a possible world with no concrete objects?' In chapter six I discuss in detail what this means but now we at least have a rough outline to work with.

1.3.3 Technical terms.

Many of the terms used in these debates have slightly overlapping meanings. A prime example is the phrase 'modal realism' which can mean anything from the radical Lewisian view to views almost completely opposed to Lewis'. Lewis even accepts that calling his position 'modal realism' was not a good idea.

Conversely, many of the philosophical positions I discuss are called by more than one name. The classic example is Lewis's position which is sometimes called 'genuine modal realism' (usually by its friends) and sometimes called 'extreme

modal realism' (not usually by its friends).⁵ In turn non-Lewisian accounts are sometimes called 'moderate modal realism'. I have tried to be consistent but unbiased in my use of these terms. I have used the phrases 'genuine modal realism' or 'Lewisian modal realism' to refer to Lewis' position and to distinguish it from the other broadly modal realist positions available. The choice of this phrase rather than the more unsympathetic 'extreme modal realism' is not intended to indicate any pre-philosophical preference for Lewis's view.

⁵ 'Mad-dog modal realism', 'rape-and-loot modal realism' and 'nuclear-holocaust modal realism' are other titles suggested for Lewis' position in Lycan, W. G. Review of *On the Plurality of Worlds* by Lewis, D. *Journal of Philosophy* 85 (1988): 42-7.

2 POSSIBILISM

This chapter and the next form the first part of the thesis and will look at the competing answers to my question (i) what are possible worlds? What is it for something to be necessary or possible? Most philosophers are happy to say that for something to be possible is for it to be the case in some possible world, whilst for something to be necessary is for it to be the case in all possible worlds. The question we now address is 'what are these possible worlds?'

The answers to this question can be divided into possibilist and actualist accounts of worlds. Possibilism is the claim that there are 'merely possible' objects (and worlds).¹ This is in contrast to actualism which claims that all that exists is the actual universe or world and its contents, everything is actual. The aim of this chapter is to investigate possibilism. Chapter 3 will be an investigation into actualism.

The main proponent of possibilism is Lewis. There are numerous expositions, critiques, attacks on and defences of Lewis' position available. It would be impossible for me to give a comprehensive account of this position and the discussions of it in a chapter – that would be a job for a whole other thesis. Instead I will give a few focused arguments about certain parts of Lewis' account. I will specifically look at the sorts of reasons that one could have for believing in or rejecting Lewis' account. I will look at the discussions of ontological economy, which stem from Lewis' account, and will use the

¹ McMichael (McMichael, A., "A Problem for Actualism About Possible Worlds," *Philosophical Review* 92 (1983): 49n.) points out the term 'possibilism' is also used to refer to the claim that necessity and possibility can be analysed in terms of quantification over possible worlds. In this sense its opposite is modalism, which disagrees. This is a completely separate disagreement which I am not considering.

conclusions I come to here in later discussions of metaphysical nihilism. I will also consider some claims about the sort of evidence we would need to believe in Lewis' plurality of worlds.

2.1 Lewisian realism

I believe that there are possible worlds other than the one we happen to inhabit. If an argument is wanted, it is this. It is uncontroversially true that things might have been otherwise than they are... On the face of it, this sentence is an existential quantification. It says that there exist many entities of a certain description to wit 'ways things could have been'... I therefore believe in the existence of entities that might be called 'ways things could have been.' I prefer to call them possible worlds²

...I must insist that my modal realism is simply the thesis that there are other worlds and individuals inhabiting these worlds; ... It is an existential claim, not unlike the claim I would be making if I said that there were Loch Ness monsters.³

These two quotes sum up the basics of Lewis' account of worlds.⁴ Lewis' answer to the question 'what are worlds?' is that they are sums of spatio-temporally related objects (just like the world we live in). The other worlds are causally isolated from this world and from each other, and any two objects are in the same world if and only if they are at any spatial or temporal distance from each other.

Within these other worlds there are people quite like us, in fact probably some very like us. They are not 'potential people' or abstract versions of ways we are not. They are flesh and blood and 'just as real' and autonomous as we are. They are not there to represent ways we could have been anymore than we are to represent ways they could have been.

² Lewis, D., *Counterfactuals* (Oxford: Blackwell, 1973) 84.

³ Lewis, D., *On the Plurality of Worlds* (Oxford: Blackwell, 1986) viii.

⁴ Lewis, *Counterfactuals* 84-96, Lewis, *On the Plurality of Worlds*.

A consequence of Lewis' plurality of worlds is Lewis' indexical account of actuality. According to Lewis, this world is not ontologically privileged over the others, it is just one among many. Lewis claims that the phrase 'the actual world' does not uniquely refer to this world. It refers to whatever world it is said in. According to Lewis, the term 'actual' is indexical. That is, it is to be understood like 'here' or 'now' or 'today'. Its interpretation depends on the context in which it is uttered. So, in any world, *w*, in which the phrase 'the actual world' is uttered, the phrase 'the actual world' refers to *w*. He says:

I say that ours is one of many worlds. Ours is the actual world; the rest are not actual. Why so? – I take it to be a trivial matter of meaning. I use the word 'actual' to mean the same as 'this-worldly'. When I use it, it applies to my world and my worldmates to this world we are part of, and to all parts of this world. And if someone else uses it, whether he be a worldmate of ours or whether he be unactualised, then (provided he means by it what we do) it applies likewise to his world and his worldmates.⁵

The motivation for Lewis' account of possible worlds is his desire to reduce the modal to the non-modal. The Lewisian realist says that modality can be explained away, that by invoking worlds we can get rid of all reference to modality. The worlds themselves, it is claimed, do not need modal notions to explain them, they are explained in terms of spatio-temporal relatedness.

2.2 Ontological economy and genuine modal realism

The actualist, on the other hand, thinks that this (accepting the existence of a plurality of worlds) is too great a price to pay. Primitive modality, they claim, is not as big a problem as an infinite number of concrete physical worlds. Explaining something in terms of something even more problematic is no explanation at all.

⁵ Lewis, *On the Plurality of Worlds* 92.

Lewis makes much use of the ‘economic metaphor’ in his discussions of genuine modal realism and against ersatzism.⁶ Now I want to look at how Lewis is using ontological economy to defend his plurality of worlds. In this section I will examine what Lewis’ understanding of ontological economy is and Melia’s attacks on that notion.

I will argue:

- (i) that Lewis has two arguments based on ontological economy and Melia’s argument is only effective against the argument from the quantitative / qualitative distinction, not against the argument that the price is right,
- (ii) that Lewis may be able to deflect Melia’s arguments using an explanation of what ‘of a kind’ means that is implicit in Lewis’ ontology,
- (iii) that any cashing out of ontological economy will require making ontological assumptions and so principles of parsimony may be more problematic when used in basic metaphysics than in science or other branches of philosophy.

2.2.1 The economic metaphor

What I’m referring to as the economic metaphor is a version of Ockham’s razor. It says that we can legitimately claim the existence of certain objects or certain kinds of objects if and only if they bring theoretical or philosophical rewards. That is, we can claim the existence of exactly as many objects or kinds of objects

⁶ Ersatzism is the term he uses to refer to nearly all theories that are not his own. All ersatz theories are actualist. In 5.1.3.3 I develop a stricter definition of ersatzism.

as we need in order to explain the issue in hand. This notion is sometimes referred to as the thesis of ontological parsimony. Lewis states his own version of this thesis (he maintains that the plurality of worlds is a philosopher's paradise):

What price paradise? If we want the theoretical benefits that talk of possibilia bring, the most straightforward way to gain honest title to them is to accept such talk as the literal truth. It is my view that the price is right ... The benefits are worth their ontological cost. Modal realism is fruitful; that gives us good reason to believe that it is true.⁷

On the other hand, the ersatzers claim:

...genuine modal realism may safely be rejected, since we have a way to match its theoretical benefits and leave its 'crazy' ontology behind. Why pay? You can enter philosophers' paradise on the cheap.⁸

Lewis uses the metaphor for two related purposes. He uses it to argue for his own account (genuine modal realism) and also to argue against that of his rivals - the ersatz theorists. He claims his own account is right because it is the only one ontologically robust enough to explain the nature of modality without recourse to a primitive notion or some sort of magical representation - the extravagant ontology is worth it. He argues against the ersatzers on the grounds that any ersatz account cannot be robust enough. The ersatz ontology is inexpensive but as a result it can't do the work it is needed to do. Lewis thinks that he and only he has got the balance right between ontological extravagance and explanatory usefulness.

It may seem strange that Lewis' argues for his ontology on the grounds that it is economical. On first inspection, the reaction of many people is to claim it is too extravagant. Most people tend to think that postulating an infinite number of

⁷ Lewis, *On the Plurality of Worlds* 4.

⁸ Ibid. 140.

concrete spatio-temporal universes just like the one we live in and their concrete spatio-temporal parts is about as uneconomical as an ontology can get. Lewis has two replies to this, one of which may be successful but the other has been attacked by Melia.

Firstly, he argues, as we have seen above, that while it may appear 'expensive' it is well worth the price. Lets call this the 'price is right' argument. He maintains that it is a very powerful theory and we shouldn't be surprised if its acceptance requires us to accept a larger metaphysics than we ordinarily might.

Secondly, he argues from a distinction between quantitative and qualitative economy. Lets call this the argument from the quantitative / qualitative distinction.

A doctrine is qualitatively parsimonious if it keeps down the number of fundamentally different *kinds* of entity; if it posits sets alone rather than sets and unreduced numbers, or particles alone rather than both bodies and spirits. A doctrine is quantitatively parsimonious if it keeps down the number of instances of the kinds it posits; if it posits 10^{29} electrons rather than 10^{37} , or spirits only for people rather than spirits for all animals.⁹

He maintains that qualitative parsimony is an advantage for a philosophical theory but quantitative parsimony is not something we need to seek in a theory. This distinction, he claims, spreads new and positive light on his metaphysics. Although Lewis is postulating an infinite number of concrete spatio-temporal worlds, they are not qualitatively different from our own world. We all accept that the world we live in exists - he is asking us to believe in many other things like it - not a whole new kind of thing. The ersatz on the other hand is asking

⁹ Lewis, *Counterfactuals* 87.

us to believe that as well as the world and spatio-temporal objects there are also abstract representations of ways this world could have been.¹⁰

You believe in our actual world already. I ask you to believe in more things of that kind, not in things of some new kind.¹¹

So Lewis claims (i) to the extent that his ontology is extravagant, it is worth the price and (ii) it is not as extravagant as it may appear as the extravagance that matters is qualitative whereas his is quantitative.

2.2.2 From one to infinity

Should we believe Lewis about this? He is asking us to believe that the move from the common sense view that there is one world to the genuine modal realist claim that there is an infinite plurality of worlds is not a qualitative difference and not something which we should worry about admitting to our ontology.

There are two objections we might raise to the idea of an infinite number of worlds. Firstly, could there be more than one world? Our common sense understanding of the actual world says that it is unique and all encompassing. Lewis wants us to believe that not everything is in the world and that there is more than one world. Of all the objects to claim it is ontologically innocent to multiply it seems that the world would be the most objectionable. Secondly, even if there is more than one world, could there be an infinite number of worlds?

¹⁰ It must be pointed out on behalf of the ersatzist that when we look at the makeup of ersatz worlds, they are the kinds of objects that most philosophers believe in anyway. Granted they are doing different work – explaining modality – but they are merely states of affairs or propositions which most of us are willing to admit into our ontology. So it is not clear that the ersatzist is being any less qualitatively parsimonious than the genuine modal realist. However, at this point, Lewis is mainly defending his own thesis rather than arguing against that of the ersatzist.

¹¹ Lewis, *Counterfactuals* 87.

Neither of these are very serious objections. I can't offer an explanation of why it might be legitimate to multiply worlds to a finite degree but not infinitely. Likewise, anyone who accepts that metaphysics can and should require us to revise our ordinary-language understanding of words will not find it hard to accept that there can be many worlds, not just one.

2.2.3 *Melia's problem*

Joseph Melia¹² attacks Lewis' claim of ontological economy. He argues that far from being ontologically parsimonious, Lewis is committed to the largest possible variety of kinds of entities. In Melia's words

Lewis's theory is as qualitatively unparsimonious as any consistent theory could be.¹³

The reasoning behind this claim is as follows: Lewis is arguing for the existence not only of an infinite number of possible worlds but also for their contents. In the plurality of worlds, any kind of object, which is metaphysically possible, exists in at least one world. However, many of these objects are qualitatively different from the objects that exist in the actual world. For example, there are worlds with flying donkeys, unicorns, disembodied souls and gods (assuming these are metaphysically possible entities). As Lewis claims that worlds are no more than the mereological sum of their parts, he must believe that each of these objects exists in some possible world or other. Everything that can exist does exist in some possible world. Lewis must accept the existence of every kind of object that could exist.

¹² Melia, J., "A Note on Lewis' Ontology," *Analysis* 52 (1992).

¹³ *Ibid.*: 192.

Although Melia's objection is certainly a problem for Lewis' argument from the quantitative / qualitative distinction, I think that it is not a problem for his argument that the price is right. If Melia is right, then he has shown that Lewis is wrong to think his metaphysics is qualitatively parsimonious - in fact it's as unparsimonious as is logically possible. However, Lewis' broader claim is that, despite the cost of genuine modal realism, the theoretical benefits outweigh the ontological price. Melia's objection would not have had the result of making Lewis realise that he was actually committed to all these entities that he wasn't aware of being committed to. Rather it pointed out that this commitment is in violation of the principle of qualitative parsimony. It is the fact that this principle is violated, not the nature of the entities or ontological price which Melia has pointed out. Lewis seems to be forced to admit he is not being qualitatively parsimonious but he can still maintain that the price is right. The price hasn't changed.

So Melia has shown us that Lewis' argument from the qualitative / quantitative distinction may be in trouble. However, Lewis can still use the price is right argument to defend the parsimony of his plurality of worlds.

There is one way that Lewis could escape the problems identified by Melia's argument. That is if Lewis claimed that every kind of entity is instantiated in this world. Then he would not be committed to any more kinds of things than philosophers who only believe in the actual world are committed to. If Lewis can show that all the kinds of things that there could be are exemplified in this world, then he can again claim ontological parsimony. In order to discover whether this is feasible, we will have to look more closely at what a 'kind of thing' is.

2.2.4 Quantitative / qualitative – what's the difference?

Lets look again at the definition of qualitative parsimony.

A doctrine is qualitatively parsimonious if it keeps down the number of fundamentally different *kinds* of entity; if it posits sets alone rather than sets and unreduced numbers, or particles alone rather than both bodies and spirits.¹⁴

How do we know what 'fundamentally different kinds of entity' are? For example, is it qualitatively parsimonious, given that most of us believe in large, hirsute quadrupeds to allow unicorns into our ontology as well as cattle and donkeys? Do animals form a kind or do living things form a kind? This makes quite a difference to the number of kinds of entities Lewis must accept.

One might suggest that concrete and abstract objects are two different kinds. But Lewis himself has problems with accepting the concrete / abstract distinction and it would only leave us with two kinds of entity both of which most philosophers accept.

More interestingly, perhaps 'all objects that could exist' could form one kind - possibilia. If this is the case then Lewis has a reply to Melia. Lewis may only be committed to one kind of object - things that could exist. If this is right, he would be qualitatively parsimonious contrary to Melia's claims. However, such parsimony would be trivial as all other philosophers would be committed to a similar position (with the possible exception of those who discuss impossible objects.)

¹⁴ Lewis, *Counterfactuals* 185.

Alternatively, it may be that only I and my indiscernible counterparts have enough in common to be a kind. In which case Lewis is being wildly uneconomical and Melia's criticisms hold.

So what does Lewis mean by 'of a kind'? Looking back at Lewis' account of the quantitative / qualitative distinction, he cites sets, numbers, particles and spirits as examples of kinds. He also seems to think that 'world' is a kind because he says that by asking us to believe in other worlds he is not asking us to believe in another kind of thing. This sounds like he is referring to some philosophical category theory - an account of the kinds of things an ontology includes. However, Lewis himself offers no such theory. In fact, when Lewis discusses this issue in a different context (discussing the ersatz account of properties) he says: (emphasis is Lewis')

Is it that, although the uninstantiated ones among his properties do not technically qualify as universals or tropes, at any rate they are *of a kind with* the instantiated universals or tropes that really are present in things? But what does 'of a kind' mean here? I don't suppose it is to be explained in terms of the sharing of second-order universals, or the exact duplication of second-order tropes! I might perhaps take 'of a kind' as primitive, as an alternative to believing in universals or tropes. But if you take it as primitive on top of your universals or tropes, you're buying a dog and doing the barking yourself.¹⁵

In this passage, written thirteen years after the publication of the quantitative / qualitative distinction, Lewis remains unclear as to what 'of a kind' means albeit in a different context.

Perhaps while not having an explicit category theory, we can look at Lewis' metaphysics and discover that implicitly he has given accounts of what he considers to be the basic categories of entity. Lewis' account of the makeup of

¹⁵ Lewis, *On the Plurality of Worlds* 161.

the world centres around Humean supervenience. Humean supervenience is the claim that the world can be completely explained with reference only to local physical matters of fact. He describes the position as:

...the thesis that the whole truth about a world like ours supervenes on the spatiotemporal distribution of local qualities.¹⁶

Humean supervenience means that the only basic kind of thing is local, four-dimensional, spatio-temporal qualities. Everything else supervenes on these. This would make Lewis' ontology very parsimonious.

Would Melia's argument work then? According to Melia Lewis is committed to every kind of thing there could be. According to Lewis, everything there is supervenes on one kind of thing: four-dimensional, local qualities. So yes, Lewis is committed to every kind of thing there could be but there only is one kind and that kind exists in this world. This makes Lewis' theory ontologically parsimonious.

But this explanation is not satisfactory. Lewis says that Humean Supervenience is contingent.¹⁷ He claims that Humean Supervenience can be used to explain why this world is the way it is but cannot be used to explain why all the other worlds are the way that they are.

Is there another way out? Is there any fundamental ontology which is common to all of Lewis' worlds? Well we do know one thing for certain about the make up of the Lewis worlds – they are all sums of spatio-temporally related objects. Lewis doesn't admit any abstract objects into his metaphysics. So Lewis can claim that he is committed to numerous worlds but each world is 'of a kind' with

¹⁶ Lewis, D., "Humean Supervenience Debugged," *Mind* 103 (1994): 473.

¹⁷ *Ibid.*: 474.

this world, i.e. it is a sum of spatio-temporally related objects, and the contents of each world are of a kind with the contents of this world, i.e. they are spatio-temporal objects.

So Lewis may be able to avoid Melia's problem by claiming that all objects are 'of a kind' i.e. spatio-temporal. However as qualitative economy has been only loosely defined using this ambiguous phrase 'of a kind' there are also numerous other interpretations available, as I have shown. If talking donkeys are a kind then Melia is right and Lewis is being extravagant.

2.2.5 Ontological economy

There are some bigger issues behind this discussion. Any time we use a principle of ontological economy in scientific or philosophical dispute, we are making an assumption that the world is, in some sense, as simple as possible. Whilst these sorts of considerations are relevant in scientific situations, it is not clear that these considerations enlighten us in metaphysical discussions. Given that the fundamental nature of things is the subject matter of metaphysics, it's not obvious that simplicity assumptions are appropriate. They may be warranted - if we can make no progress without them - but we must not forget that they are assumptions and so may be mistaken and misleading. Simplicity is an important feature of explanations but it is not necessarily a feature of reality. I have attempted to give an account of what Lewis could mean by a 'kind of entity' but in order to do this I had to delve deep into the rest of Lewis' metaphysics. Without delving into Lewis' metaphysics it is impossible to unproblematically characterise qualitative parsimony. But by delving in the notion itself becomes heavily metaphysically weighted. If the job of analytic metaphysics is to work

out what kinds of things there could be, then assuming a principle which requires an understanding of what a 'kind of thing' is, and assumes there are very few of them, is metaphysically-laden. If principles of economy cannot be explained without reference to 'kinds of entities', then economy principles themselves are heavily metaphysically weighted and far from basic.

We've looked at some reasons for denying possibilism. If merely possible objects exist, as well as actual objects, then it seems like we have an ontologically extravagant ontology. It may be possible to avoid this conclusion as I have shown but there is a danger in using ontological assumptions in ontology.

2.3 What sort of argument would make us believe in possibilism?

Now its time to look at some reasons *for* accepting possibilism. Brian Skyrms¹⁸ argues that the problem with Lewis' plurality of worlds is not the account itself but the kind of argument Lewis gives for it. Lewis claims that in order to understand modal and counterfactual talk, we must accept his plurality of worlds. This is an argument from the nature of language to the nature of reality. Skyrms summarises it:

What this argument comes to, I think, is the contention that the most viable semantical theory for our ordinary counterfactual and modal discourse is one which assumes the co-existence of many actual possible worlds.¹⁹

Skyrms claims that Lewis is going about arguing for the plurality of worlds in the wrong way and the only kind of argument that could show the existence of a

¹⁸ Skyrms, B., "Possible Worlds, Physics and Metaphysics," *Philosophical Studies* 30 (1976).

¹⁹ *Ibid.*: 326.

plurality of worlds is a physical argument, that is, an argument from our physical theories.

Skyrms' argument runs as follows. Lewis is claiming the existence of a plurality of physical worlds. If we were to argue about the existence of other physical objects, e.g. the Easter rabbit, goblins, angels or Pegasus, we would require physical evidence e.g. rabbit tracks.

...if they are supposed to exist in as concrete and robust a sense as our own [world] ... then they require the same sort of evidence for their existence as other constituents of physical reality.²⁰

Skyrms is arguing that the only sort of evidence that can be admitted to a debate on the alleged existence of some physical object is physical evidence.

What does Skyrms mean by physical evidence? He seems to have something like the Quine-Putnam criteria of indispensability in mind. If our best physical theory requires the existence of some physical object, then we are justified in asserting the existence of that object. If our best physical theory does not require a given object then we have no good reason for asserting its existence.

Skyrms then goes on to look at an example. The Everett-Wheeler interpretation of quantum mechanics claims that in order to explain quantum mechanics we need to posit a plurality of worlds. These worlds are physical and 'just as real' as ours, just like those discussed by Lewis. Skyrms quotes a discussion of the Everett-Wheeler interpretation saying their theory requires

...a continual splitting of the universe into a multitude of mutually unobservable but equally real worlds.²¹

²⁰ Ibid.

²¹ DeWitt, B. and N. Graham, eds., *The Many-Worlds Interpretation of Quantum Mechanics* (Princeton: Princeton University Press, 1973) v quoted in, Skyrms, "Possible Worlds, Physics and Metaphysics," 323.

However, in the end, Skyrms decides that the Everett-Wheeler interpretation is not sufficient to warrant belief in a plurality of worlds. I won't go into his arguments for this here. What I want to look at is the claim that being a requirement of our best physical theory is the correct criterion for claiming the existence of physical objects. In short I want to deny what I am calling Skyrms' proof thesis.

Skyrms' proof thesis: Claims about the existence of physical objects must be backed up with physical evidence.

This thesis is exhibited in the following quote:

What is required to support the many-worlds contention is a demonstration that the best physical theory requires a richer reality, which from the standpoint of our current perspective, is a reality of many worlds.²²

Now, if we are to believe in physical things in this world, we need a certain kind of proof or evidence of their existence. It seems quite plausible that this should be the sort of evidence that Skyrms refers to - seeing rabbit tracks is good evidence for the existence of rabbits. More generally, the existence of physical entities of a given kind must be required by our best physical theory in order for us to be justified in asserting their existence. However, 'mere' possibilities are a special category of physical object and I will argue that they differ from other physical objects in a way that warrants us having different criteria for asserting their existence.

The important difference between mere possibilities (on Lewis' understanding) and other this-worldly physical entities is that other possible worlds and their contents are causally isolated from this world. This fact is crucial to this

²² Skyrms, "Possible Worlds, Physics and Metaphysics," 330.

argument as possible worlds are in principle incapable of giving us physical evidence of their existence. According to Skyrms' proof thesis, we therefore have no reason to believe in them.

There are at least two possible reasons that we can fail to have physical evidence for the existence of an object. Firstly, if that object does not exist we will be unable to find physical evidence of its existence. Secondly, if an object is causally isolated from this universe, we will be unable to find physical evidence of its existence. Now Skyrms' thesis confuses these two different circumstances. He makes the fallacious step of arguing that because no non-existent object will yield physical evidence of its existence, then if we have no physical evidence of the existence of a physical object it must be presumed not to exist.

The origin of this problem is the seemingly innocent assumption that any physical object will be capable of yielding physical evidence of its existence and we will be capable of observing this evidence. However, it is obvious that if this evidence is causally isolated from us this cannot be the case.

This shows up another false assumption in Skyrms' argument. Skyrms seems to assume that the type of evidence required to assert the existence of a kind of object depends solely on what kind of object it is. E.g. Physical objects require physical evidence. However this is implicitly denying the following thesis:

Appropriate evidence thesis: The kind of evidence required to justify claiming the existence of a certain kind of object depends, not only on (i) the kind of object involved, but also on (ii) the kind of evidence that object is capable of producing and (iii) our ability to observe that evidence.

Skyrms has assumed that if we are discussing the existence of a physical object the only sort of evidence that can be used is physical evidence. However, he has ignored (indeed begged the question of) the possibility that there are physical objects causally isolated from us, and so in principle, incapable of yielding any physical evidence, which we can encounter. Perhaps Skyrms has assumed that 'physical' means this worldly but this is to beg the question of whether or not there are physical entities outside of this world. As this is exactly what is at issue here it is an inappropriate assumption.

Whether or not belief in a given object requires physical evidence depends, not only, on whether that object is physical, but also, on whether or not that object is capable of yielding physical evidence that we are capable of observing.²³ Possible worlds are not capable of producing physical evidence that we can observe but that does not mean we cannot be justified in believing in their existence.

It could be objected that I am interpreting the idea of physical evidence in too simplistic a way. Skyrms gives us two interpretations. He says (i) that observing rabbit tracks is evidence for rabbits and (ii) that being required by our best physical theory is the criterion for claiming the existence of entities. We don't have physical rabbit-track-equivalents for possible worlds but perhaps it could be argued that our best physical theory could claim the existence of possible worlds. If so possible worlds would be capable of yielding the sort of evidence required.

However, this is not a promising line of inquiry. There are three reasons for this. Firstly, the example Skyrms uses is the Everett-Wheeler interpretation and he

²³ I use the word 'observing' here not just to mean seeing but experiencing in any way that could count as physical evidence.

concludes that it does not require us to believe in the existence of other possible worlds. Also, it's not clear that this is our best theory.

Secondly, even if Everett-Wheeler is our best physical theory and Skyrms is mistaken so Everett-Wheeler does require the existence of a plurality of worlds, these are not the worlds stipulated by Lewis. Lewis' worlds are causally isolated from each other in a way that those discussed by Everett-Wheeler (EW-worlds) are not. EW-worlds seem to share pasts. In Lewis' account there are worlds whose pasts are indistinguishable from each other but they are still separate worlds according to his counterpart theory. In the admittedly brief account of EW-worlds, which Skyrms gives, worlds seem to separate from each other at particular points in time. The difference can be seen as EW-worlds are described as branching – many different endings from a single start – whereas Lewis' worlds are non-branching.

Thirdly, EW-worlds cannot do all the work required by a metaphysics of modality. It seems like a plausible assumption that the laws of physics could have been different. EW-worlds don't seem to allow for this fact. They represent an interpretation of physical possibility but not of metaphysical or logical possibility. If EW-worlds exist then they exist for every possible variation since the big bang. Perhaps they even exist for different initial states of the universe. However, they do not exist for other possibilities. The laws of physics could have been slightly or even radically different. However, none of these possibilities are represented by EW worlds. This is the most fundamental problem with Skyrms project of finding physical evidence of any kind for possible worlds. It can only yield an understanding of a limited range of possibilities not of the possibilities represented by worlds with different physics to the actual world.

What would Skyrms say to this? In the absence of physical proof for the Easter rabbit, etc. he says we should be suspicious of discussions of the Easter rabbit. He could do likewise with modal-talk. He could claim that talk about the possibility of worlds with radically different physics from ours is suspect. However, this is hardly an argument. Furthermore, it is exactly to remove this suspectness that Lewis posits the plurality of worlds so answering this criticism.

In summary I disagree with Skyrms for several reasons. Physical evidence is not the only kind of evidence we can have for the existence of possible worlds. Secondly and more generally, the kind of evidence required for asserting the existence of something is not just determined by the kind of object involved but also by the kind of evidence that object can be expected to produce. Thirdly, if our best physical theory requires a plurality of worlds, then it seems unlikely that this plurality will explain modal claims about worlds, which have different laws of physics to the actual world. If we want to claim the existence of Lewis' plurality of worlds, physical evidence will not be sufficient but that does not mean that we should abandon Lewis' account.

Lewis²⁴ also discusses Skyrms' paper. In order to reply to Skyrms' charges he draws a parallel between discussions of modality and discussions of mathematics. He points out that:

... we have knowledge of a vast realm of mathematical objects beyond the reach of our causal acquaintance.²⁵

He also says that:

²⁴ Lewis, *On the Plurality of Worlds* 110ff.

²⁵ Ibid. 110.

I do not see how any of these different statements supports the alleged connection between different ways of knowing and different kinds of entities to be known.²⁶

So Lewis has a similar position to mine - the kind of object whose existence is in question does not directly determine the kind of evidence we require to make that existence claim.

I explain the features relevant to the sort of evidence we should give for an object using the appropriate evidence thesis. Lewis, on the other hand, claims that the feature of an object, which is relevant to the kind of evidence required for an existence claim, is the modal status of that object.

...the department of knowledge that requires causal acquaintance is not demarcated by its concrete subject matter. It is demarcated instead by its contingency.²⁷

Contingent knowledge such as that donkeys exist in our world requires causal evidence. Lewis says it requires 'causal contact' with donkeys. (He does not mention whether or not being a pre-requisite of our best scientific theory would count as evidence.) The knowledge that there are donkeys at some other possible worlds is necessary knowledge. This does not require causal evidence.

2.4 Conclusion

Melia has argued against possibilism on the grounds that it violates parsimony assumptions. I have shown that even if this is the case, Lewis can still use his 'price is right' argument in his defence. Its not clear that either Melia's attack or Lewis' argument from the quantitative / qualitative distinction works because they both use the ambiguous phrase 'of a kind' without explaining what is meant

²⁶ Ibid. 111.

²⁷ Ibid.

by this. I have shown that a number of different interpretations are available and the parsimonious status of Lewis' theory depends on which of these is appropriate.

Skyrms claims that Lewis does not give the right kind of reasons for believing in his plurality of worlds. I have shown that this is not the case. Skyrms' notions about what is appropriate evidence are too narrow and beg the question of possibilism.

So it remains unclear whether or not Lewis' account is sufficiently parsimonious.

Melia's attack may still be relevant but that of Skyrms certainly is not.

Now we've seen some reasons for accepting and rejecting possibilism, let's have a look at its alternative: actualism.

3 ACTUALISM

This chapter breaks down into two main sections. In the first part I will look at what actualism is and survey a few of the philosophical problems attending it (as I did with possibilism in the last chapter). Unlike possibilism, actualism comes in many different forms. In the second part of this chapter I will look at a few of these specific forms of actualism in more detail. In particular I will consider how they fare when faced with my question (ii) could there have been no concrete objects.

3.1 The challenges for actualism

The challenge for the actualist is that they have to explain how the following claims are true without reference to merely possible worlds or objects. Below are three tests that any actualist account must pass if it is to be adequate for explaining our beliefs about modality. An actualist must be able to explain, without reference to merely possible objects, that:

- This world is actual (first challenge).
- The other worlds could have been actual (second challenge).
- There could have existed objects that do not actually exist (third challenge).

There are numerous versions of actualism. As I mentioned before, I can't give a comprehensive account of actualism and its variations in one chapter. However I do need to give an outline of some of the problems the actualist faces which we will consider later in discussing nihilism. So for brevity, I will look only at

Plantinga's actualist account of worlds. Most other accounts are analogous to Plantinga's.

Plantinga defines actualism as the claim that

... there neither are nor could be any nonexistent objects.¹

Plantinga thinks that possible worlds are maximally consistent states of affairs.

His replies to the challenges listed above mostly turn on the distinction between a state of affairs' existing and a state of affairs' obtaining. He says

There are such things as states of affairs; among them we find some that obtain, or are actual, and some that do not obtain.²

Lets look at an example of this distinction: the state of affairs of Quine's being a philosopher exists and obtains, whereas the state of affairs of Quine's being a politician exists but does not obtain. States of affairs are tenseless, the state of affairs of Quine's being a philosopher still obtains even after his death.

So for Plantinga, worlds are complex states of affairs and the maximal state of affairs that obtains is the actual world. So for an object to be actual is for a state of affairs that involves it to obtain. For a world to be actual is for a given maximal consistent state of affairs to obtain.

Now we are ready to look at Plantinga's answer to the first challenge for actualism – can Plantinga explain the fact that this world is actual without reference to mere possibilia? Plantinga can reply to this quite easily. All the possible worlds are maximally consistent states of affairs. All these maximally consistent states of affairs exist. However, only one of them obtains. The one that

¹ Plantinga, A., "Actualism and Possible Worlds," in *The Possible and the Actual*, ed. Loux, M. J. (London: Cornell University Press, 1979), 257.

² Plantinga, *The Nature of Necessity* 44.

obtains is the actual world. For a world to be actual is just for the relevant maximal consistent state of affairs to obtain.

What of the second challenge – can Plantinga explain the fact that the other worlds could have been actual? Again the distinction between obtaining and existing comes into play. The other worlds exist – they are states of affairs in this world but they do not obtain – they are not actual. But they could have been actual – they could have obtained. The fact of their existence as consistent states of affairs guarantees the fact that they could have obtained. He says regarding the state of affairs of Quine's being a politician

Of course it isn't my claim that this state of affairs does not exist, or that there simply is no such state of affairs; indeed there is such a state of affairs. But it does not obtain; it isn't actual. It could have been actual, however, and had things been appropriately different, it would have been actual; it is a possible state of affairs. 9's being prime, on the other hand, is an impossible state of affairs that neither does nor could have obtained.³

So possible states of affairs are ones that could have obtained, so they could have been actual. In contrast impossible states of affairs could not have been actual and could not have obtained.

The third challenge is harder – surely there could have existed objects other than those which actually do exist? Plantinga thinks it should be explainable. He says

It is certainly plausible to suppose that there could have been an object distinct from each object that does in fact exist; i.e. ... Possibly, there is an object distinct from each object that exists in α .⁴

Yet in Plantinga's definition of actualism he claims that there neither are nor could have been things that do not exist. How can we reconcile these two seemingly incompatible claims?

³ Plantinga, "Actualism and Possible Worlds," 258.

⁴ Ibid., 256.

Well, what Plantinga wants to say is that other worlds don't obtain. The things whose existence or actuality would be entailed if those worlds were actual or obtained do not exist. But if one of those worlds were actual or obtained then the entities entailed by that would also obtain and be actual. For example, there could have been a world with flying donkeys. This does not mean that flying donkeys exist, it just means that if such a world had obtained they would have existed. Likewise, if a world without donkeys of any description obtained then there would not be any donkeys. It would still be possible for there to be donkeys but they would not actually exist. So when we say that there could have been flying donkeys we do not mean that there exist possible but non actual flying donkeys, neither do we mean that there could have existed possible but non-actual flying donkeys. All we mean is that if the world that obtained was one that entailed flying donkeys then they would exist. They would then be actual and not merely possible.

What Plantinga is trying to deny is not the plausible claim that this world does not contain every object that could have existed, rather he is trying to deny that a form of Meinongianism is metaphysically possible. He wants to deny that there are non-existent objects and that there could have been non-existent objects (i.e. that there is a world at which there exist non-existent objects.) Of course there are worlds which contain objects that do not exist at this world but it is not the case that there is any world, w , at which there exist objects that don't exist in w although at w there might exist objects that don't exist at α .

Of course the actualist will happily concede that there could have been an object distinct from any that exists in α . Hence there is a possible world W in which there exists an object distinct from any that actually exists.⁵

But, for Plantinga, worlds are states of affairs and how can there be states of affairs about non-existent objects? For example, if it is possible that there be flying donkeys then there is a possible world (or maximally consistent state of affairs) at which there are flying donkeys. This state of affairs exists at our world although it does not obtain at our world. But how can a state of affairs about flying donkeys exist in a world where no flying donkeys exist? What is this state of affairs? What is its relationship to flying donkeys? Are they constituents of it? Can it exist if they do not?

Plantinga explains these queries using essences (sometimes called haecceities). He claims that a state of affairs of the form 'x exists' is not a compound of the object x and the property of existing. Rather it is a compound of the property of existence and an individual essence. For Plantinga an essence is a kind of property.

The initial idea is this: an essence of Socrates is a property (or a group of properties) that Socrates has essentially and that is unique to him... to be an essence of Socrates, a property must be such that nothing else could have had it.⁶

So how do essences help us get around the problem of existing states of affairs involving non-existent objects? Plantinga claims that essences exist necessarily (i.e. in all possible worlds) but they need not correspond to any actual individual i.e. an essence can exist in a world where there is no object corresponding to that essence. If this is the case, we say that the essence is unexemplified, although of

⁵ Ibid., 268.

⁶ Plantinga, *The Nature of Necessity* 70.

course it still exists. Essences are essential to their exemplars but the exemplars are not essential to the essences. I.e. In every world in which Socrates exists he has his essence (which Plantinga calls Socrateity) but Socrateity exists in some worlds in which Socrates does not exist. Socrateity is just the property of being identical with Socrates.

...exemplifying Socrateity is essential to him. Socrateity, however, does not have essentially the property of being exemplified by Socrates.⁷

So although no flying donkey exists in our world, the state of affairs of there being flying donkeys exists but does not obtain. The state of affairs can exist without any flying donkeys (actual or merely possible) existing, it requires only that there exist in this world an essence which in some other world is co-exemplified with the property of being a flying donkey.

3.2 Varieties of ersatzism

Unlike possibilism, actualism comes in many different forms. Most of what I've said so far is general and covers all varieties of ersatzism. Now I want to discuss two particular kinds of ersatzism – linguistic ersatzism (in 3.2.1 below) and modal fictionalism (in 3.2.2 below).

3.2.1 *Linguistic ersatzism*⁸

Joseph Melia⁹ argues for a form of what Lewis calls 'linguistic ersatzism'. He claims that:

... possibilities can be reduced to sets of sentences.¹⁰

⁷ Plantinga, "Actualism and Possible Worlds," 268.

⁸ Thanks to Philip Bricker and Joseph Melia for detailed comments and discussion of this section.

⁹ Melia, J., "Reducing Possibilities to Language," *Analysis* 61 (2001).

Linguistic ersatzism has been attacked by Lewis¹¹ and Bricker.¹²

I want to argue against, at least some forms of, linguistic ersatzism. My main claim is that linguistic ersatzism reduces in the wrong direction. Possibility is something far more fundamental than language so any attempt to explain it in terms of language (even the very unconventional language that Melia suggests) cannot succeed. As a result of this, some forms of linguistic ersatzism (reductionist versions) mean that we cannot get a non-arbitrary answer to my question (ii). I argue that this means they are not satisfactory answers to my question (i).

3.2.1.1 What is linguistic ersatzism?

Linguistic ersatzers claim that possibilities can be reduced to language or that possible worlds can be reduced to linguistic entities. Bricker defines linguistic entities as

finite sequences of types of concrete marks or sounds ... and set-theoretic constructions out of such sequences.¹³

Melia states that

each possible world is identified with a set of sentences of some world making language.¹⁴

What is the world making language? Bricker gives us criteria that any successful world-making language must fulfil. Firstly in order to avoid circularity the

¹⁰ Ibid.: 19.

¹¹ Lewis, *On the Plurality of Worlds* 142-65.

¹² Bricker, P., "Reducing Possible Worlds to Language," *Philosophical Studies* 52 (1987).

¹³ Ibid.: 332.

¹⁴ Melia, "Reducing Possibilities to Language," 19.

language must not contain names for each of the possible worlds. Secondly natural languages will not suffice although a modified natural language might suffice if it satisfies Bricker's five conditions. The conditions are:

- (1) All sentences are declarative sentences.
- (2) Truth values of sentences are independent of contexts of inscription or utterance.
- (3) All sentences are unambiguous.
- (4) There is no vagueness in the truth conditions for sentences, let alone indeterminacy of a more radical sort.
- (5) Sentences can be uniquely parsed so as to exhibit their truth-functional and quantificational form.¹⁵

So the simplest suggestion for an account of linguistic ersatzism is

Possible worlds are maximal consistent sets of sentences of L¹⁶

where L is some language satisfying these five criteria. Two worlds are distinct if there is some sentence of L that is true at one and false at the other.

There are two main forms of linguistic ersatzism.¹⁷ Linguistic ersatzers can *either* claim that modality can be completely reduced to linguistic conventions *or* claim that modality is primitive and cannot be fully reduced. It is only the first sort of linguistic ersatz (the reductionist) whom my arguments here work against. It is also this first sort of ersatz that Bricker was mainly attacking in his paper.

3.2.1.2 Reducing modality to language

It seems to me that, in attempting to reduce modality to language, the ersatz is trying to reduce in the wrong direction.¹⁸ Modality is a far more fundamental

¹⁵ Bricker, "Reducing Possible Worlds to Language," 333.

¹⁶ Ibid.: 37.

¹⁷ This was pointed out to me by Philip Bricker.

¹⁸ My arguments here only work against the reductionist linguistic ersatzers.

property of the world than language. If there were no languages there would still be modal truths about the world (e.g. that there could have been languages.) This is not to say that modality is absolutely primitive.¹⁹ It is to say that languages, even those artificial specimens suggested by the linguistic ersatzers, are not a very fundamental element in any ontology. Take the Lagadonian suggestion that entities could be the words that name themselves in a given language. Now it is obvious that the existence of some entities is prior to those entities naming themselves. But the existence of a kind of entity is going to require many modal facts – that such entities could exist, the conditions under which they can co-exist with other entities, etc. These modal facts are more primitive and fundamental to our understanding of the world than the linguistic facts which the linguistic ersatzer is calling on to explain them. This shows us that the reduction is going in the wrong direction. You can only reduce to something more primitive.

3.2.1.3 The lack of modal intuitions

The linguistic ersatzer explains worlds in terms of maximal consistent sets of sentences of a language. But Bricker²⁰ points out that there is a circularity here. Consistency is a modal term. This means explaining modal notions in terms of worlds and worlds in terms of a modal notion. How can the reductionist linguistic ersatzer accept this? They want to claim that modality can be completely eliminated. Bricker suggests that they could claim that those parts of

¹⁹ Lewis criticises the ersatz accounts of modality as they take modality as primitive in some very fundamental way – namely that it cannot be reduced to anything else. This claim is not necessary to the argument I am advancing here. All I am claiming is that modality is more primitive than language. Hence if modality can be reduced it cannot be reduced to language, it must be reduced to something more fundamental than itself. This argument is agnostic as to whether or not modality is primitive in the more radical way that Lewis accuses the ersatzers of claiming.

²⁰ Bricker, "Reducing Possible Worlds to Language," 338ff.

reality that we have no intuitions about are not really of concern to us or even that there is no truth of the matter about such obscure possibilities.

... where modal intuitions give out and are unable to decide the truth value of some sentence about possible worlds, the realist and the reductionist disagree as to what to say. The realist maintains that there is a fact of the matter, but that the fact is unknown and perhaps unknowable. The reductionist maintains that there is no fact, and that the truth-value of the sentence is to be conventionally decided one way or the other.... For although the realist thinks that the reductionist is bound to get many of the unknown facts of modality wrong, he cannot object in this way without merely begging the question whether or not there are any such facts.²¹

So what about my question (ii) could there have been nothing? or is there an empty possible world? This seems to be the sort of issue where our 'modal intuitions give out' so is it to be answered by mere convention? Presumably the linguistic ersatz would claim that there is no fact of the matter as to whether there is an empty possible world or not and so it doesn't matter which convention we adopt.

But why should we accept this? Intellectual inquiry is not simply a matter of formalising our intuitions and leaving gaps where we have no intuitions. Furthermore, people have intuitions on both sides of this and other modal metaphysical disputes. Consider the similarities between metaphysics and some branches of pure mathematics e.g. set theory or topology. Both consider the nature and properties of certain kinds of objects. Neither are areas where we have natural intuitions about the more detailed questions. Yet in mathematics we have no qualms about admitting that progress can be made and that we can use our reason to work out problems we have no intuitions about or have conflicting intuitions about. Why is it not the same in metaphysics? We have intuitions about

²¹ Ibid.: 339.

modality – that things could have been different to the way they are, etc. – and working from these using reasoned argument we can develop more robust theories of modality. From some of these theories we can discover answers to questions such as whether or not there is an empty world.

It could be objected that mathematics is the area of inquiry where we have the least disagreement. Metaphysics and philosophy on the other hand are areas where there is a huge amount of disagreement. However the mere fact that there is disagreement does not show that there is no fact of the matter. The linguistic ersatzers claim is that where we have no intuitions or can't decide an issue it should be decided by convention. However this completely misses the point that there are better and worse accounts and we can choose the best one and have good reason to hope it is close to the truth.

The linguistic ersatzers' more radical claim that there is no truth of the matter seems far too strong a claim to be based on our intuitions alone. He claims that those issues that we have no intuitions on are those where there is no fact of the matter as to what is the right answer. However, why should we have so much faith in our intuitions. Wouldn't we be extraordinarily lucky to have intuitions about all and only those issues on which there is a fact of the matter and none about those that are pseudo-issues? Again we can use the mathematical analogy to give a counterexample. There are plenty of mathematical problems about which most people have absolutely no intuitions. Indeed even if the question were explained we might still be unable to find an intuition on one side or the other. However, using mathematical techniques the answers to some of these questions can be found. I see no reason why deep and difficult metaphysical

issues shouldn't likewise have answers despite the apparent lack of intuitions concerning them.

3.2.1.4 Conclusion

I have argued against reductionist versions of linguistic ersatzism. (I think these arguments would work against some other kinds of non-Lewisian reductionism about possible worlds.) Linguistic ersatzism, in its reductionist form, cannot tackle my question (ii), the nihilism question, in an objective way. This is because the reductionist linguistic ersatzist's way out of the circularity problem rests on the assumption that we are fortunate enough to only have intuitions in exactly those areas of inquiry in which there is a fact of the matter. All these issues come about because the attempt by the linguistic ersatzist to reduce possibilities to language is an attempt to reduce in the wrong direction. Modality is not necessarily primitive but it is more fundamental than language and so any attempt to reduce it to language cannot succeed.

The reductionist linguistic ersatzist may not accept these arguments – they would probably say my arguments beg the question about whether or not we can reduce modality to language. However I think that these arguments would at least be persuasive for someone who is agnostic about this position. Certainly, if one thinks that my question (ii) is a meaningful question, then we have good reason to reject reductionist linguistic ersatzism. In other words, I think there are good reasons for rejecting reductionist linguistic ersatzism, even though they might not persuade a convinced reductionist linguistic ersatzist to abandon their position.

3.2.2 *Modal fictionalism*

Modal fictionalism claims that we can understand and use modal terminology, even the language of possible worlds, without any commitment to the existence of possible worlds or their contents. According to fictionalism, modal discourse should be understood as having a suppressed prefix 'According to the story, S, ...' Where S is some account of modality. The fictionalist position can be formalised as follows:

A iff According to GMR, A*²²

Where A is an ordinary modal statement and A* is the genuine modal realist translation of A. An example would be the following: This table could have been blue iff according to genuine modal realism there is another possible world in which this table is blue. By 'genuine modal realism' (GMR) the fictionalist refers to Lewis' views on possible worlds.

The fictionalist neither confirms nor denies the truth of the 'story' they are using:

... what the realist regards as true metaphysics, the fictionalist regards as a (probably) false story, to be mentioned but not asserted in his account of modality.²³

The relationship between a modal statement and its GMR translation is that the translation explains the truth of the modal statement. But how can the fictionalist claim that this story whose truth they deny explains the truth of our ordinary modal propositions? Can claims about the details of a fictional story explain truths? Given that the realist asserts that A iff according to S, A*, can we accept

²² Divers, J., "A Modal Fictionalist Result (Plurality of Worlds Hypothesis)," *Nous* 33 (1999): 318.

²³ Rosen, G., "Modal Fictionalism," *Mind* 99 (1990): 332.

A, deny (or at least not assert) A* and yet claim that the truth of A can be *explained* by the fact that according to S, A*?

Rosen gives as an example of safe use of fictions in philosophy. He says that:

Russell thought that according to Leibniz's monadology the table is really a colony of souls. But we do not conclude on this basis that Russell was himself committed to the animist metaphysic.²⁴

However, given this situation, Russell cannot then go on to use Leibniz's account to explain certain features of the table. He could do so within quotes - he could say that 'according to Leibniz this explains why the table is the way it is' but it would be absurd for him to accept this explanation himself without accepting the Leibnizian premise on which it is based.

3.2.2.1 Which story should the fictionalist accept?

I suggest that there is a problem about which story should be used by the fictionalist.²⁵ Rosen²⁶ suggests that we use Lewis's account of modal realism. He also acknowledges that Armstrong's very different account could be used.²⁷ It may be that other accounts like that given by Plantinga or others could also be used. Rosen says that he is assuming that the debate between Lewis and the ersatzers has been concluded and the Lewisian account has won out.²⁸ However, as this debate is far from over, we must consider the possibility that ersatz

²⁴ Ibid.: 331.

²⁵ A related but different argument is given in Baldwin, T., "Modal Fictionalism and the Imagination," *Analysis* 58 (1998).

²⁶ Rosen, "Modal Fictionalism."

²⁷ Ibid.: 332n.

²⁸ Ibid.: 329.

accounts may provide the fiction we need. If this is the case, then a problem arises when we ask why we should choose one of these accounts over the others.

If we were to ask a non-fictionalist approaching these accounts for the first time, what was their motivation for choosing one of these accounts rather than its competitors, they would probably cite its likely proximity to the truth of the situation. But this is not compatible with fictionalism. The characteristic premise of fictionalism is that it does not assert the truth of the story it relies on. The story must be thought of only as a fiction. We could not choose a story based on its truth or its proximity to the truth.

What other criteria do we use for choosing between rival theories? Simplicity - can we accept the simplest story? Well, what is the simplest theory in this context? Probably the story that requires the existence of the fewest kinds of entity, perhaps some sort of ersatzism. However, what is the motivation for choosing the simplest theory? Surely it is to avoid multiplying entities beyond necessity. If we are not asserting the existence of these entities then that is not a problem. The motivation for choosing the simplest theory is often its likely proximity to the truth. Given two theories with equal explanatory power the simpler is more likely to be true. Hence our choice of it. But it is important for the fictionalist that the truth of the theory is not the criterion used, as we have seen above.

Another criterion that the fictionalist might try to make use of is coherence with one's prior modal beliefs. She could choose the theory that coheres best with what she already believes to be the case. Most accounts of possible worlds agree on the basic modal intuitions that we have before we engage in the intricacies of modal theories. The modal propositions whose truth is disputed by the

proponents of various modal accounts are obviously just those modal propositions whose truth is not determined by our basic modal intuitions. Let's consider my question (ii) again. The nihilist proposition that there could have been nothing, will be true according to some accounts of possible worlds and false according to others (including the standard Lewisian account). If, as Rosen suggests, the fictionalist just accepts the Lewisian story as their fiction, then they are begging the question of metaphysical nihilism. So the fictionalist needs to have a philosophical position on the nature of nihilism, prior to choosing their fiction.

3.2.2.2 Conclusion

So we have found a criterion that the fictionalist can use for choosing their fiction. They can use coherence with their prior beliefs. However, all our standard, pre-philosophical and low-level philosophical beliefs about modality will be agnostic between fictions. It is only complicated philosophical issues like metaphysical nihilism which will require particular accounts of possible worlds. Rosen's suggestion begs the question of nihilism. If we want to choose standard GMR as our fiction on the basis of coherence with our other beliefs, we need to deny metaphysical nihilism, and have good reasons to do so, and only then accept GMR as our fiction. If on the other hand, we believe in metaphysical nihilism, then we need to choose another fiction.

3.2.3 Conclusion

We now have a clear idea of what actualism is and how it deals with some of the challenges facing it. We have also seen that certain forms of linguistic ersatzism are not able to deal with my question (ii). This is because they reduce in the

wrong direction – from something more fundamental to something less fundamental. Modal fictionalism, as defended by Rosen and others, begs the question of my question (ii). This is because it uses the standard Lewisian account of worlds without considering why that would be the appropriate story for explaining modal facts and specifically without considering the truth of metaphysical nihilism.

Now we have an understanding of both possibilism and actualism and some of the philosophical problems associated with both, we can leave question (i) and start to consider question (ii): could there have been nothing?

4 THE SUBTRACTION ARGUMENT

Metaphysical nihilism¹ is the claim that there could have been nothing or the equivalent claim that there is an empty possible world.² Metaphysical nihilism has various detractors from whom Baldwin³ and Rodriguez-Pereyra⁴ wish to defend it. Their defence is the subtraction argument. The subtraction argument argues that because the world would exist if any given object in the world did not exist, so the world would exist if no objects existed at all.

In this chapter I will explain and analyse the subtraction argument in its current forms. I will not seek to defend it here but merely to work out the implications and consequences of the two different versions that Baldwin and Rodriguez-Pereyra have produced.

4.1 The subtraction argument

Let's look in some detail at the actual argument. Baldwin explains it as follows:

- (A1) There might be a world with a finite domain of 'concrete' objects.
- (A2) These concrete objects are, each of them, things which might not exist.

¹ This term is introduced by Lowe (Lowe, E. J., "Metaphysical Nihilism and the Subtraction Argument," *Analysis* 62 (2002).) to distinguish this claim from the other claims known as nihilism in the history of philosophy. I will follow his usage for the same reason.

² The title of Baldwin's paper is "There *might be* nothing" however the position he is describing is really that there *could have been* nothing. That is, the possibility under discussion is not the epistemic claim that for all we (or more accurately I) know there might be nothing in the actual world (except me) but rather that had the world been other than it is there might have been nothing.

³ Baldwin, T., "There Might Be Nothing," *Analysis* 56 (1996).

⁴ Rodriguez-Pereyra, G., "There Might Be Nothing: The Subtraction Argument Improved," *Analysis* 57 (1997), Rodriguez-Pereyra, G., "Lowe's Argument against Nihilism," *Analysis* 60 (2000), Rodriguez-Pereyra, G., "Metaphysical Nihilism Defended: Reply to Lowe and Paseau," *Analysis* 62 (2002).

(A3) The non-existence of any one of these things does not necessitate the existence of any other such thing.⁵

From these three premises Baldwin reasons as follows. There is a world, w_1 accessible from the actual world, W , such that there is a finite number of concrete objects in w_1 (from (A1)). For any object x_1 in w_1 there is another world, w_2 which is accessible from w_1 which resembles w_1 completely except that it lacks x_1 (and anything else whose existence depends on the existence of x_1). This follows from (A2). w_2 does not contain anything that does not exist in w_1 (by (A3)). This process can be repeated until a world is reached which Baldwin calls w_{\min} . w_{\min} consists of either one object or a group of objects such that if one of them were not to exist then none of them would exist. From this world we can use the subtraction procedure once more to get to w_{nil} . w_{nil} is the world where there are no concrete objects.

S4 modal logic is sufficient for the subtraction argument as the argument requires transitivity but not symmetry of the accessibility relation between worlds. Hence w_{nil} is accessible from or possible relative to our actual world, W . There is a possible world accessible from this world where there is nothing. According to the standard possible worlds analysis of modal claims, something, P , is possible if and only if there is a (accessible) possible world at which P is the case. So there could have been nothing.

Baldwin⁶ goes on to cash out his argument. His criterion of concreteness is that an object is concrete if and only if it fails to satisfy the identity of indiscernibles. Otherwise similar objects can be distinguished by their spatio-temporal location.

⁵ Baldwin, "There Might Be Nothing," 232.

⁶ Ibid.: 233.

So now we know how the argument goes and it seems to be valid. But is it sound? Lets look at the premises one at a time and see if they are plausible.

4.2 Premise (A1)

(A1) There might be a world with a finite domain of 'concrete' objects.

How does Baldwin justify his claim that there can be a finite number of concrete objects? First of all, he claims that unit sets and spatio-temporal regions do not constitute concrete objects. This is important as if they did it would lead to an infinity of such objects. Rather, he claims they satisfy the identity of indiscernibles.

This is where Rodriguez-Pereyra⁷ suggests his first improvement to the subtraction argument. Rodriguez-Pereyra points out that (A1) fails on three counts. It does not exclude (i) controversial unit sets, (ii) spatio-temporal points or (iii) the parts of spatio-temporal objects from the domain of concrete objects. If these criticisms are correct then Baldwin cannot propose a world with finitely many concrete objects. Each of these problems points to there being infinitely many objects in every possible world. If any unit sets are concrete then there must be an infinite number of concrete objects as each unit set will itself have a unit set. Likewise if spatio-temporal points or parts of concrete objects are concrete then there cannot be a finite number of concrete objects.

4.2.1 *The identity of indiscernibles*

Before considering what objects Baldwin may or may not have committed to concreteness, lets look at his account of concreteness. Baldwin's 'mark of

⁷ Rodriguez-Pereyra, "There Might Be Nothing," 162-3.

concreteness' is that an object is concrete if and only if it fails to satisfy the identity of indiscernibles. If the principle of the identity of indiscernibles is right then two objects are the same if and only if they have all the same properties. If two objects share all the same properties and yet are distinct then they do not satisfy the principle of the identity of indiscernibles. So Baldwin claims it is the mark of concrete objects that two distinct concrete objects could share all their properties.

Rodriguez-Pereyra claims that Baldwin's account of concreteness is too strong. The identity of indiscernibles has two forms. On the stronger version (which Rodriguez-Pereyra⁸ attributes convincingly to Baldwin) two objects which share all their intrinsic properties must be the same object. On the weaker version, only objects that share both intrinsic and relational properties must be the same.

Rodriguez-Pereyra cites Baldwin's (B1)-(B3) as evidence that Baldwin is using this stronger version. (Baldwin's argument (B1)-(B3) is discussed in more detail in 4.4 below and 7.3 below.) In (B1) for example, Baldwin says:

...the identity of a concrete object is not determined by the intrinsic properties which determine what kind of thing it is.⁹

There is further evidence for this interpretation when Baldwin first introduces the identity of indiscernibles. Baldwin states that:

I shall take it that the primary mark of concreteness is failure to satisfy the identity of indiscernibles. This connects with the familiar criterion of spatio-temporal locatedness via the assumption that space-time provides a way of distinguishing exactly similar objects.¹⁰

⁸ Ibid.: 161.

⁹ Baldwin, "There Might Be Nothing," 234.

¹⁰ Ibid.: 233.

This seems to indicate that Baldwin thinks that objects with exactly the same intrinsic properties may nonetheless be differentiated on the grounds of their spatio-temporal location. Spatio-temporal location is surely a relational property. It is an object's location relative either to other objects and events (if the relationist theory of space and time is correct) or relative to absolute space and time (if the substantival theory is right).

So Baldwin's criterion of concreteness if we are to spell it out is:

An object is concrete if and only if it could share all its intrinsic properties with some other object.

4.2.2 Unit sets

Back to the argument. Rodriguez-Pereyra claims that (A1) is false because an infinite number of unit sets, spatio-temporal points and parts of concrete objects are all concrete on Baldwin's criterion. Lets look at unit sets first. Rodriguez-Pereyra claims that unit sets do not satisfy the stronger version of the identity of indiscernibles that is advocated by Baldwin. He develops a dilemma to show that either unit sets must be concrete or else everything satisfies Baldwin's version of the identity of indiscernibles and so nothing is concrete. Lets look firstly at Baldwin's¹¹ reasoning and then secondly at Rodriguez-Pereyra's criticisms of it.

Baldwin argues that unit sets are not concrete on his criterion. His argument runs: Consider two very similar physical objects, x_1 and x_2 and their unit sets $\{x_1\}$ and $\{x_2\}$. Now the sets $\{x_1\}$ and $\{x_2\}$ are not identical to each other as they have different intrinsic properties. $\{x_1\}$ has the identity of x_1 as an intrinsic property

¹¹ Ibid.

and $\{x_2\}$ has the identity of x_2 as an intrinsic property. Therefore $\{x_1\}$ and $\{x_2\}$ do not share all the same intrinsic properties and so they are abstract. If they did share all their intrinsic properties then they would be concrete by Baldwin's account as they are distinct objects and only concrete objects according to Baldwin can have different identities but share all their intrinsic properties. So each unit set has the identity of its only member as an intrinsic property. This means no two have all the same intrinsic properties as no two have the same member. Hence no two can have all the same intrinsic properties and yet be distinct. Hence no unit sets are concrete.

Rodriguez-Pereyra criticises this argument. He claims that Baldwin was mistaken in assuming that the identity of a member of a set is a property of that set. The identity of x_1 is a property of x_1 but it is not a property of $\{x_1\}$. The relevant property is the property of 'having x_1 as its only member'. This is a property of $\{x_1\}$ and determines the identity of $\{x_1\}$. However this is a relational rather than an intrinsic property.

Rodriguez-Pereyra's arguments here turn on the distinction between intrinsic and extrinsic (or relational) properties, but what is that distinction? Relational properties are properties that involve another particular in an essential way. This is the account that Rodriguez-Pereyra¹² gives. There is some controversy over the distinction between intrinsic and extrinsic properties. One way to understand an intrinsic property is as a property that an object could possess even if it were the only object that existed.¹³ There isn't time to go into this dispute now but the fact

¹² Rodriguez-Pereyra, "There Might Be Nothing," 162.

¹³ This is what Lewis and Langton (Lewis, D. and R. Langton, "Defining 'Intrinsic'," *Philosophy and Phenomenological Research* 58 (1998): 116.) call a lonely object.

that there is debate about this matter gives us reason to be suspicious of using intrinsicness as an essential part of our account of concreteness.¹⁴ It could be argued that all philosophical positions will involve some assumptions that are controversial in other areas of philosophy but I think that in this case it is a valid criticism of the nihilist's view. Nihilism is a position about concrete objects (namely that there could have been none) and so its defenders need to have a fully cashed out account of what concreteness is.

Back to Rodriguez-Pereyra's argument, the property of 'having x_1 as its only member' involves x_1 which is distinct from $\{x_1\}$ so it is a relational property. Now if x_1 is indistinguishable from x_2 then the only properties that distinguish $\{x_1\}$ from $\{x_2\}$ are those properties which involve x_1 or x_2 . So $\{x_1\}$ and $\{x_2\}$ differ only in their relational properties not in their intrinsic properties. But that means that $\{x_1\}$ and $\{x_2\}$ are two different objects which share all their intrinsic properties. This means that they fail to satisfy Baldwin's identity of indiscernibles and so must be concrete. Hence unit sets of concrete objects are concrete and given the existence of one concrete object we are immediately faced with the inevitability of an infinite number of concrete objects contra Baldwin's premise (A1).

Is any way out available? What if we claim that 'having x_1 as its only member' is an intrinsic property of $\{x_1\}$? Well Rodriguez-Pereyra thinks that this won't help either. He claims that even if we were to allow this then it would surely mean that 'being the only member of $\{x_1\}$ ' is also an intrinsic property of x_1 . But then x_1 and x_2 do not share all their intrinsic properties and so we have no reason to

¹⁴ This issue is discussed in detail in Lewis, D., "Extrinsic Properties," *Philosophical Studies* 44 (1983), Lewis and Langton, "Defining 'Intrinsic'."

believe that they fail to satisfy the identity of indiscernibles. This would mean that the only thing which could have all the same properties as x_1 is x_1 . But then x_1 is not concrete as it couldn't share all its intrinsic properties with anything else and in fact neither is anything else concrete. Each object has some unique intrinsic property (being the only member of its own unit set) so nothing fails to satisfy the identity of indiscernibles and nothing is concrete. So no, this is not a way out.

So Rodriguez-Pereyra has found a dilemma for Baldwin's criterion of concreteness. Either unit sets are concrete or nothing is concrete. Obviously it is not the case that nothing is concrete. The best approach is to accept his first criticism (that 'having x_1 as its only member' is a relational rather than an intrinsic property). Hence unit sets of concrete objects are concrete given Baldwin's criteria of concreteness.

However its not obvious that Rodriguez-Pereyra's second criticism holds. Even if 'having x_1 as its only member' is an intrinsic property of $\{x_1\}$ it doesn't follow that 'being the only member of $\{x_1\}$ ' is an intrinsic property of x_1 . The identity of a set is determined by its members so it is easy to see why having a certain member is an intrinsic property of a given set. But objects themselves exist independently of their unit sets so I don't see why Rodriguez-Pereyra wants to say that:

... if *having x_1 as its only member* is intrinsic, then so, surely, is x_1 's property of *being the only member of $\{x_1\}$* .¹⁵

So the second horn of Rodriguez-Pereyra's dilemma is not as damning as he thinks it is and Baldwin is not forced to accept Rodriguez-Pereyra's conclusion

¹⁵ Rodriguez-Pereyra, "There Might Be Nothing," 162.

that unit sets are concrete. However, if Baldwin were to take this horn of the dilemma he would have to accept that ‘having x_1 as its only member’ is an intrinsic property of $\{x_1\}$ which seems implausible on any account of intrinsicness.

To conclude, Rodriguez-Pereyra may be right that ‘having x_1 as its only member’ is a relational rather than intrinsic property of $\{x_1\}$. It is a property that involves another object in an essential way. It is also not a property that something could have had if it was the only object that existed. However I have made two criticisms of his view here. One is that given that the intrinsic / relational distinction is problematic and controversial, an argument that turns so centrally on this distinction needs to give an account of intrinsicness and reasons for accepting that particular account. And secondly, even if ‘having x_1 as its only member’ is an intrinsic property of $\{x_1\}$ it doesn’t follow that ‘being the only member of $\{x_1\}$ ’ is an intrinsic property of x_1 as the first seems far less controversial than the second. So one horn of Rodriguez-Pereyra’s dilemma does not work. However, that horn was the less plausible one anyway so Rodriguez-Pereyra’s overall argument holds and Baldwin must admit to the concreteness of an infinite number of concrete objects.

4.2.3 Spatio-temporal points

Rodriguez-Pereyra’s second attack on Baldwin’s (A1) focuses on the status of spatio-temporal points. Lets adopt the same approach as before and look firstly at Baldwin’s argument and then at Rodriguez-Pereyra’s criticisms of it. Baldwin claims that

...regions of space-time do not count as concrete objects by the identity of indiscernibles test, since although otherwise indistinguishable objects can

be distinguished by their space-time location, space-time regions themselves cannot be thus distinguished.¹⁶

So if two regions of space and time are indistinguishable they must be identical.

Rodriguez-Pereyra says that this cashing out of the identity of indiscernibles relies on the very controversial absolutist account of space and time. Why? Well spatio-temporal location gives us a way of distinguishing between otherwise very similar objects according to Baldwin. But Max Black¹⁷ has shown that this is not necessarily so. Black argues that in a world containing only two iron spheres we can only tell the two apart using spatio-temporal location if space-time is understood according to the absolutist account. So Baldwin can't uncontroversially cite spatio-temporal location as a way of distinguishing otherwise indistinguishable objects. If space-time is relational then he would be committed to saying that these spheres are abstract which is obviously absurd - I am quite confident that nothing made out of iron is abstract. As Rodriguez-Pereyra says:

Baldwin's argument for nihilism thus depends on an absolute view of space-time and is therefore at least as controversial as that view.¹⁸

But, can Baldwin still say that spatio-temporal points are not concrete using failure to satisfy the identity of indiscernibles alone as the criterion of concreteness? No, all spatio-temporal points are exactly the same intrinsically. They differ only in relational properties – the relationships they have to each other. But we do not think that all spatio-temporal points are one and the same.

¹⁶ Baldwin, "There Might Be Nothing," 233.

¹⁷ Black, M., "The Identity of Indiscernibles," *Mind* 61 (1952). Cited in Rodriguez-Pereyra, "There Might Be Nothing."

¹⁸ Rodriguez-Pereyra, "There Might Be Nothing," 162.

So they fail to satisfy Baldwin's version of the identity of indiscernibles. They are different entities which all share the same intrinsic properties. So they must be concrete.

So again Rodriguez-Pereyra has shown us that when we cash out Baldwin's notion of concreteness we find that (A1) must be false. Baldwin's account only works if the absolutist account of space time is correct. If not, then there cannot be a merely finite number of concrete objects, there is an infinite number of spatio-temporal points and each of these is concrete.

4.2.4 Parts of concrete objects

Rodriguez-Pereyra's third attack on Baldwin's (A1) is based on the fact that the parts of concrete objects are themselves concrete objects. This subject is not mentioned in Baldwin's original paper. Rodriguez-Pereyra's suggestion is that as space is infinitely divisible, any concrete object, x , that occupies a region of space, must occupy an infinite number of smaller regions of space. These smaller regions are parts of the largest region that x also occupies. Rodriguez-Pereyra argues that it follows that x must have an infinite number of parts occupying the infinitely many regions of space-time that make up the largest region that x occupies. And as x is concrete then its parts must be concrete. So again, Rodriguez-Pereyra has shown us that if we use Baldwin's conception of concreteness then we are committed to an infinite number of concrete objects which is contrary to Baldwin's premise (A1). (I discuss this argument again in 7.2 below.)

4.3 Rodriguez-Pereyra's improvements

Rodriguez-Pereyra suggests improving the subtraction argument so as to rule out these three problems. There are three steps in his improvement. The resulting modified argument he calls the subtraction argument*.

The first step is to replace all references to concrete objects in the original argument with references to concrete* objects. Secondly he shows that if in w_{nil} there are no concrete* objects then there are also no concrete objects (this extra step is not needed in Baldwin's original argument). Finally he modifies the criterion of concreteness so that if an object is concrete then it *non-vacuously* fails to satisfy the identity of indiscernibles. Lets look at these points in detail.

The first change that Rodriguez-Pereyra makes in Baldwin's argument is to introduce the notion of a concrete* object. Now Rodriguez-Pereyra defines a concrete* object as follows:

...let us call x concrete* if and only if x is concrete, memberless and a maximal occupant of a connected region.¹⁹

He also explains the idea of a maximal occupant of a connected spatio-temporal region.

A region A is connected if and only if every two points in A can be joined by a path of points in A and disconnected if and only if it is not connected. Let us say that x is a maximal occupant of a connected region if and only if x occupies a connected region and for all y , if x is a part of y then y is scattered, where a scattered object is one occupying a disconnected region.²⁰

This means that a solitary brick, to use Rodriguez-Pereyra's example, is a maximal occupant of a connected region as it occupies a connected region and it

¹⁹ Ibid.: 163.

²⁰ Ibid.

is not part of any larger unscattered object. As the brick is not scattered its parts are not maximal occupants of connected regions as they are parts of the larger unscattered object that is the brick.

This tells us what it means for something to be a maximal occupant of a connected region. We already know what it means for something to be concrete (that is, we know Baldwin's account and Rodriguez-Pereyra only modifies it slightly as we will see shortly). But Rodriguez-Pereyra gives us no idea here what it means for an object to be memberless. Perhaps he thinks the meaning of memberlessness is obvious but I will argue that this notion is not well defined and leads to problems in Rodriguez-Pereyra's broader account of modality. (See 5.2.3 below.) However I don't think it affects his version of the subtraction argument.

We can now look at Rodriguez-Pereyra's modified subtraction argument*:

- (A1*) There might be a world with a finite domain of concrete* objects.
- (A2*) These objects are, each of them, things which might not exist.
- (A3*) The non-existence of any one of these things does not necessitate the existence of any other such things.²¹

The subtraction argument* follows the same lines of reasoning as the original argument but the conclusion is that w_{nil} is a world with no concrete* objects. But this is not the conclusion we want. Metaphysical nihilism is the claim that there is a world with no concrete objects and as we have seen the domain of concrete* objects is quite restricted compared to the domain of concrete objects. So Rodriguez-Pereyra's next step is to show us that if there is a world with no

²¹ Ibid.: 164.

concrete* objects then it must have no concrete objects. Let's call this premise A4* of the subtraction argument*:

(A4) If there is a world with no concrete* objects then it must have no concrete objects.*

His argument rests on the claim that in w_{nil} there are no spatio-temporal objects. This is because we know from the subtraction argument* that in w_{nil} there are no maximal occupants of connected regions of space-time. Now if there are no maximal occupants of space-time regions there must be no occupants of space-time regions and so no physical objects at all. So if w_{nil} contains no concrete* objects it contains no concrete objects.

4.3.1 Parts of concrete objects revisited

If we accept (A1*) then it does not matter if concrete objects have an infinite number of parts. This is because we only need there to be a finite number of concrete* entities, not of concrete entities. As the parts of concrete objects will not be maximal occupants of connected regions, they are not concrete*.

Lowe²² takes issue with this point concerning the parts of concrete objects. He does not want to claim that Rodriguez-Pereyra's reformulation is unsuccessful in avoiding this problem. Rather he wants to claim that there was no problem in the first place. He claims that there is nothing wrong with supposing that concrete objects are mereologically simple. Of course, not all concrete objects are mereologically simple, but some might be. He cites electrons and quarks as examples of entities, which in some sense have spatio-temporal location (thus

²² Lowe, "Metaphysical Nihilism and the Subtraction Argument," 63-5.

conforming to Lowe's criterion of concreteness) and yet have no parts (as they are fundamental particles). If Lowe is right then the problem of the concreteness of parts of concrete objects is avoided and there is no need to modify Baldwin's original (A1) in the way that Rodriguez-Pereyra suggests. This is because if there is a finite number of concrete objects but their mereological atoms are a finite number of concrete fundamental particles, then we are not faced with the infinite number of concrete objects which Rodriguez-Pereyra was trying to avoid.

Rodriguez-Pereyra replies to Lowe's point saying that:

... the possibility of a world with a finite domain of concrete objects would depend on the possibility of a world with a finite number of concrete mereological atoms. This depends on the possibility of concrete mereological atoms. Both possibilities are more controversial than the possibility of a world with a finite domain of concrete* objects.²³

His specific reply takes two steps. Firstly he declines to commit himself on the question of whether or not there could be concrete mereological atoms. He goes on to point out that even if there are such things they could not be extended in space.

The first thing to notice in this disagreement is the fact that Rodriguez-Pereyra and Lowe are using different criteria of concreteness. (This will be discussed in much more detail in 6.2 below.) This is why Rodriguez-Pereyra is able to admit that he is uncommitted on the issue of concrete mereological atoms but decidedly committed against spatially extended mereological atoms. In contrast Lowe defines concreteness as location

... 'in' space and time, or at least in time²⁴

²³ Rodriguez-Pereyra, "Metaphysical Nihilism Defended," 173.

²⁴ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 62.

so he cannot make this distinction.

Once we have noted this difference we can carry on looking at Rodriguez-Pereyra's argument. His argument runs analogously to his original argument that concrete objects must have an infinite number of parts. He says that if an electron, for example, occupies some region of space, then that region's parts must be occupied by the parts of the object. As the region will be composed of an infinite number of spatio-temporal points there must be an infinite number of parts of that object such that each part occupies a point. So these parts of the object must be point-sized as they occupy a point-sized region of space. Hence they are not spatially extended.

Once Rodriguez-Pereyra has made this point he goes on to argue that even if there were such atoms, that does not mean there could be just a finite number of them. And even if this were the case, he claims that does not mean there could be a world with only a finite number of concrete objects. If this is the case, although there is no world with a finite domain of concrete objects, there are still worlds with a finite domain of concrete* objects. So Rodriguez-Pereyra's reformulation of (A1) as (A1*) seems preferable.

Rodriguez-Pereyra also discusses the possibility that if mereological atoms are point-sized then (if they existed isolated from other objects) they are not concrete* objects. The problem is that if every world with a concrete object in it also had an isolated mereological atom in it, and these atoms are not concrete* then the subtraction argument would yield a world with no concrete* objects but nonetheless containing a concrete object – our isolated mereological atom. However, Rodriguez-Pereyra believes that this is not the case. If there are

isolated mereological atoms then they are concrete*.²⁵ This is because an isolated mereological atom, if it existed, would be a maximal occupant of a connected spatio-temporal region. This is because it occupies a point and a point must be a connected region. One could say it is trivially a maximal occupant of a connected region. It is also concrete and memberless, therefore it is concrete*. Hence the projected problem is avoided.

So far it seems like (A1*) is plausible. The nature of parts of concrete objects does not cause a problem for it. Alternatively, as Lowe has pointed out, if there could be a finite number of concrete mereological atoms and concreteness is defined as location in space and time, we can accept (A1) and yet avoid the problems that Rodriguez-Pereyra has suggested.

4.3.2 *Unit sets revisited*

Rodriguez-Pereyra points out that A1* (unlike A1) is consistent with the claim that unit sets are concrete but claims that they are not concrete* (as they are not memberless). This combined with premise A4* means that the existence of an infinite number of concrete unit sets does not cause a problem for the subtraction argument* whereas it does cause problems for the subtraction argument in its original form. We had previously discussed whether or not the unit sets of concrete objects are concrete. However in w_{nil} there are no concrete objects and so there are no unit sets of concrete objects so it is not an issue.

²⁵ It could be argued that there is a tension between Rodriguez-Pereyra's two claims that (i) an infinite number of concrete mereological atoms which are the parts of concrete objects are not concrete* (this is required for A1* to be true if there are an infinite number of parts to any concrete objects) and (ii) an isolated mereological atom would be concrete*. However I think this apparent tension is just that – apparent. The difference is that in the first case the atoms are not maximal occupants of a connected region whereas in the second case, the isolated atom is, albeit a point-sized region.

Lowe²⁶ discusses this point too and again his disagreement with Rodriguez-Pereyra rests on their opposing accounts of what it is that makes an object concrete. Of course the unit sets of concrete objects are not concrete for Lowe as they do not exist in space and time. So again Lowe is unconvinced by Rodriguez-Pereyra's claim that (A1) needs to be re-written as (A1*).

Our overall conclusion so far is that either Rodriguez-Pereyra is right about the divisibility of concrete objects and the correct criterion of concreteness, in which case (A1*) is plausible, or Lowe is right about the divisibility of concrete objects and the criterion of concreteness and (A1) is plausible.

4.3.3 *Spatio-temporal points revisited*

What about space-time points and regions? Well if the relational account of space-time is correct then as w_{nil} has no spatio-temporal objects there is no space-time. So even if space-time points are concrete there are none.

If the relational account is not correct then space-time points seem to be concrete. This is where the third prong of Rodriguez-Pereyra's improvement comes into play. He modifies Baldwin's mark of concreteness so that an object is concrete if and only if it fails *non-vacuously* to satisfy the identity of indiscernibles:

... Ks are concrete if and only if Ks have intrinsic properties and there is some possible world in which at least two Ks share all their intrinsic properties.²⁷

How does this help with the question of space-time points? Well Rodriguez-Pereyra claims that space-time points have no intrinsic properties. They have no shape, size, temperature or mass. So their failure to satisfy the identity of

²⁶ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 64.

²⁷ Rodriguez-Pereyra, "There Might Be Nothing," 165.

indiscernibles is trivial – they don't share their intrinsic properties because they do not have any intrinsic properties to share. So, on this modified criterion of concreteness, space-time points are not concrete. This means that even if the absolutist account of space-time is right that does not mean there are concrete objects in w_{nil} .

I have argued elsewhere that a consequence of this is that Rodriguez-Pereyra has ruled out the possibility that space-time points (and other objects) have haecceities or essences.²⁸ Haecceities are properties held uniquely by a single object. (I will discuss this point further in section 5.1.3.3 below.)

Space-time regions are a slightly different matter to space-time points. Space-time regions, Rodriguez-Pereyra claims, are sets of space-time points. As such they have intrinsic properties like shape and size. This means that two spatio-temporal regions of similar shape and size could share all the same intrinsic properties and yet be different, thus failing to satisfy the identity of indiscernibles. If this is the case they would be concrete. However Rodriguez-Pereyra²⁹ points out that as space-time points are abstract and sets of abstract entities are abstract then space-time regions must be abstract too. But surely there is a problem here. Rodriguez-Pereyra is using two different criteria of concreteness. On the one hand he is claiming that to be concrete is to non-vacuously fail to satisfy the identity of indiscernibles. On the other hand he claims at although spatio-temporal regions non-vacuously fail to satisfy the identity of indiscernibles they are nonetheless abstract as they are sets of abstract

²⁸ Coggins, "World and Object: Metaphysical Nihilism and Three Accounts of Worlds."

²⁹ Rodriguez-Pereyra, "There Might Be Nothing," 165.

objects. Rodriguez-Pereyra³⁰ gets out of this by claiming that non-vacuous failure to satisfy the identity of indiscernibles is a necessary but not sufficient criterion of concreteness. All concrete objects non-vacuously fail to satisfy the identity of indiscernibles but not all objects that non-vacuously fail to satisfy the identity of indiscernibles are concrete. He does not speculate as to what additional criteria are needed to give a full specification of the abstract / concrete distinction.

It's not clear that we should accept Rodriguez-Pereyra's account of what a space-time region is. He tells us that they are sets of space-time points but is this true? I think that there are two problems with Rodriguez-Pereyra's account. Firstly, sets are not the sorts of things that physical objects can occupy, whereas space-time regions can be occupied by physical objects. Conversely sets are the kinds of things that can have numbers, for example, as members. But space-time regions can't have members. So space-time regions are not sets. Secondly, although there is obviously some sort of very important relationship between space time points and space-time regions, it isn't one of a set and its members. Perhaps it's a mereological relationship of a whole and its parts. Rodriguez-Pereyra even uses these terms earlier in the paper saying

...every such object *x* that occupies a space-time region has infinitely many parts, each of them occupying some of the infinitely many regions included in the region *x* occupies.³¹

³⁰ Ibid.

³¹ Ibid.: 163.

The use of the term 'includes' does not usually signify a set-membership relation. It adds credence to the thought that space-time regions are mereological sums of space-time points rather than sets of those points.

How does this affect Rodriguez-Pereyra's account? His aim is to say that space-time regions are sets of abstract objects, and so are abstract, although they fail to non-vacuously satisfy the identity of indiscernibles. I am suggesting that they may be sums or aggregates rather than sets of abstract objects. This would still seem to make them abstract, so Rodriguez-Pereyra's point holds.

To sum up where we've go to so far in this section. If relationism about space and time is correct then there is no problem with space-time points and regions for the nihilist. If absolutism is correct then a problem arises as w_{nil} seems to contain concrete space-time points, contra to the nihilist claim. Rodriguez-Pereyra modifies the nihilist criterion of concreteness in two ways in order to avoid this result. Firstly he says that it is *non-vacuous* failure to satisfy the identity of indiscernibles that is the mark of concreteness. This means that space-time points are abstract. However, I have pointed out that this means the nihilist must reject haecceity theory.³² Secondly he claims that non-vacuous failure to satisfy the identity of indiscernibles is only a *necessary condition* for, not a complete characterisation of concreteness. This means that space-time regions (which Rodriguez-Pereyra construes as sets of space-time points) are not concrete. However I have criticised this on the grounds that space-time regions are more like aggregates of space time points than sets of space time points. This means the nihilist can still claim that they are abstract. So nihilism still has a

³² Coggins, "World and Object: Metaphysical Nihilism and Three Accounts of Worlds."

coherent position but it has the unexpected consequence that haecceity theory must be false.

Lowe³³ is unconvinced by this, Rodriguez-Pereyra's final attempt to motivate the replacement of (A1) with (A1*). The reason is the same as before – the difference in criteria of concreteness between Lowe's account and that of Rodriguez-Pereyra. If all and only those objects that are located in space and time are concrete, then space-time points and regions are not concrete. As Lowe says:

... they do not exist in space and time and do not have spatio-temporal locations – rather, they constitute the spatio-temporal locations of concrete objects which happen to occupy them.³⁴

However Lowe does admit that Baldwin's original argument is committed to the highly controversial absolutist account of space and time. Despite this he does not claim that Rodriguez-Pereyra's modification is justified. This is because he is implicitly suggesting his own modification. If we accept Lowe's claim that spatio-temporal locatedness is the criterion of concreteness rather than Baldwin's claim that failure to satisfy the identity of indiscernibles is the mark of concreteness then we have no need to modify (A1). In summary then, Lowe suggests that we can retain Baldwin's original argument (A1)-(A3) and have no need for Rodriguez-Pereyra's modified premises if we simply abandon Baldwin's criterion of concreteness and adopt a spatio-temporal criterion instead.

³³ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 64-5.

³⁴ Ibid.: 65.

4.3.4 *God and the null set*

Rodriguez-Pereyra again uses his incomplete specification of the criteria of concreteness to avoid commitment to the concreteness of the null set and a god, should it exist. This is important because if God and the null set exist it is likely that they exist necessarily. This would mean that if they were concrete there could be no empty world and metaphysical nihilism would be false. If there is a god it must fail to satisfy the identity of indiscernibles. Rodriguez-Pereyra is unclear as to whether the null set would also fail to satisfy the identity of indiscernibles but even if it does, he claims, it must still be abstract. So whatever detail is required to complete the criterion of concreteness it must assure the abstractness of the null set and God.

4.3.5 *Conclusion*

By replacing (A1) with (A1*), Rodriguez-Pereyra's improved subtraction argument* has dealt with the three problems Rodriguez-Pereyra identified in Baldwin's original argument. In w_{nil} there are no spatio-temporal objects. The unit sets of concrete objects don't exist as there are no concrete objects. Likewise the parts of concrete objects don't exist. Finally even if space-time would exist in w_{nil} in the absence of concrete objects, the points and regions of space-time would not be concrete objects either.

Alternatively, if we accept Lowe's criterion of concreteness and his position on the divisibility of concrete objects, we can retain Baldwin's (A1) without any modifications and without the problems that Rodriguez-Pereyra identified.

4.4 Premise (A2)

(A2) These concrete objects are, each of them, things which might not exist.

(A2) excludes the possibility of a concrete necessary being. This could be said to beg the question against the ontological argument. In order to avoid this charge Baldwin puts forward an argument in support of (A2). He suggests a second triad of premises. Here they are with both Rodriguez-Pereyra's improved (B1*) and Baldwin's (B1).

(B1*) It is a necessary condition of concrete objects, and therefore of concrete* ones, that they non-vacuously fail to satisfy the identity of indiscernibles. So the identity of a concrete* object is not determined by the intrinsic properties which determine what kind of thing it is.³⁵

(B1) It is a mark of concrete objects that they do not satisfy the Identity of Indiscernibles. So the identity of a concrete object is not determined by the intrinsic properties which determine what kind of thing it is.

(B2) In the case of any being whose existence is necessary, the fact that its existence is necessary is determined by the kind of thing it is, and thus by its intrinsic properties.

(B3) For any being whose existence is necessary, the intrinsic properties which determine its existence also determine its identity.³⁶

(B1) follows from Baldwin's criterion of concreteness and (B1*) follows from Rodriguez-Pereyra's criterion of concreteness*. (B2) Baldwin informs us is uncontroversial. (B3) however, is not obviously true. Baldwin informs us he has only one example to go on - the ontological argument. The ontological argument centres on the notion of perfection. It is a characteristic of perfection that it entails uniqueness – only one thing can be perfect. Therefore, if the ontological

³⁵ Rodriguez-Pereyra, "There Might Be Nothing," 165.

³⁶ Baldwin, "There Might Be Nothing," 234.

argument works it works only in one case. (B3) is a generalisation from this case and Baldwin believes it to be a 'reasonable hypothesis'.³⁷

If we accept these premises then we must accept that there cannot be a concrete being whose existence is necessary. The identity of a concrete object is not determined by the intrinsic properties which determine what kind of thing it is. The identity of a necessary object is determined by its intrinsic properties. As the property of having one's identity determined by one's intrinsic properties is not compatible with not having one's identity determined by one's intrinsic properties, no object can have both of these properties. As these properties are linked by (B1) or (B1*) - (B3) to the properties of concreteness and concreteness*, and necessary existence respectively, no object can have these two properties either. There cannot be a concrete necessary being or a concrete* necessary being.

In a lot of ways this argument is at least as important as (A1)-(A3). (B1)-(B3) denies the conclusion of the ontological argument – no concrete thing is necessary. (A1)-(A3) broadens this claim to deny Lowe's position (although there is no necessary object it is necessary that there be some object) and entails metaphysical nihilism. Really these are two parallel arguments which together bring us to metaphysical nihilism rather than an argument for metaphysical nihilism and a sub-argument for one of its premises as the layout of Baldwin's paper might suggest.

³⁷ Ibid.: 235.

4.5 Premise (A3)

(A3) The non-existence of any one of these things does not necessitate the existence of any other such thing.

Finally Baldwin defends (A3). He discusses the following inference: if, for every individual object, it is possible that that object has some attribute (e.g. non-existence) then it is possible that all objects have that attribute. This he formulates as:

$$C: (\forall x) \Diamond (Fx) \vdash \Diamond (\forall x) (Fx)^{38}$$

C is of course false. This is the move that Armstrong discusses when he says that

They [metaphysical nihilists] can see no reason to prevent them proceeding from the distributive contingency of everything to the collective contingency of everything.³⁹

Of course Armstrong has his own reasons for denying this move which we will discuss in section 5.1.3.1 below.

However, Baldwin claims that the falsity of C is not a threat to (A3). This is because if we take the property denoted by F to be non-existence, that does not provide a counterexample to C. Properties such as 'is at least as heavy as anyone else' do provide counterexamples to C. This is because this kind of property involves an ordering of a domain of more than one object. Non-existence is not the sort of property that involves this sort of ordering. So although C is false if F denotes the property 'is at least as heavy as anyone else' there is no obvious reason to think C is false if F denotes non-existence.

³⁸ Ibid.

³⁹ Armstrong, D. M., *A Combinatorial Theory of Possibility* (New York: Cambridge University Press, 1989) 64.

Baldwin also considers the claim that every possible world requires a concrete object. On this understanding, a possible world only exists or can be identified if it has at least one concrete object. That is, it is a background condition of a possible world that it has some object to generate possibilities. Lowe claims that the necessity of arithmetic depends on the existence of concrete objects. This involves denying the existence of the null set and Baldwin⁴⁰ is not prepared to do that (see 7.4.2 below).

4.6 Paseau's criticisms

A critique of the subtraction argument has recently been published by Alexander Paseau.⁴¹ Paseau's claim is that Rodriguez-Pereyra's third premise (A3*) can be interpreted in two ways. What's more, on both of these interpretations the argument is invalid. Before we look at these two readings let's just remember what (A3*) said.

(A3*) The non-existence of any one of these things does not necessitate the existence of any other such things.⁴²

Paseau distinguishes a weaker and a stronger reading of this claim. The weaker version is:

On the weaker reading of premise (A3*) it states that the non-existence of any given one of the finitely many objects of which (A1*) and (A2*) speak, namely, x_1, x_2, \dots, x_n , does not necessitate the existence of any other given one of these x_i . In other words, for any two of the x_i , there is a world in which neither of them exists.⁴³

⁴⁰ Baldwin, "There Might Be Nothing," 237.

⁴¹ Paseau, A., "The Subtraction Argument Does Not Add Up," *Analysis* 62 (2002).

⁴² Rodriguez-Pereyra, "There Might Be Nothing," 164.

⁴³ Paseau, "The Subtraction Argument Does Not Add Up," 74.

Paseau goes on to show that on this reading, (A3*) and (A1*) and (A2*) could all be true even if Rodriguez-Pereyra's conclusion – that there is an empty world – was false. If this is the case the argument is invalid – there is a possible situation in which the premises are true and the conclusion is false. So how does Paseau's argument go? Well he gives a counter example. In his model there are 3 concrete* entities. The x_i i.e. x_1 and x_2 are the members of the finite domain of concrete* objects referred to in (A1*) and (A2*). The third concrete* object, o , does not overlap with the other two, x_1 and x_2 . There are seven worlds in the model each of which can be represented by a set: $\{x_1\}$, $\{x_2\}$, $\{o\}$, $\{x_1, x_2\}$, $\{x_1, o\}$, $\{x_2, o\}$, $\{x_1, x_2, o\}$. In this model, Paseau claims, the weaker reading of (A3*) is true. $\{x_1, x_2\}$ represents a world with finitely many concrete* objects. There is a world where neither of them exists (the world represented by $\{o\}$). And neither of them is in every world (x_1 is not in $\{x_2, o\}$ for example and x_2 is not in $\{x_1, o\}$). Yet there is no empty world. So for any two of the x_i there is a world in which neither of them exists. This result he tells us can be generalised and holds for any finite number of x_i greater than 1. So Paseau has shown us that although none of the x_i may exist, there is still a non-empty world containing a concrete* object, o .

The stronger reading of (A3*) states that:

... the non-existence of any one of these x_i does not necessitate that there is even one of the x_i ...this is to say that there's at least one world in which none of the x_i exists.⁴⁴

However Paseau, using the same model, goes on to show that the conjunction of this stronger reading of (A3*) along with (A1*) and (A2*) is also compatible

⁴⁴ Ibid.

with the denial of Rodriguez-Pereyra's conclusion. Hence this version forms an invalid argument too. The reasoning goes like this. In the world containing only o , none of the x_i exist. However the model still contains no empty world. So there is at least one world in which none of the x_i exists but that does not require the existence of the empty world. Like the earlier claim this can be generalised for any finite number of x_i greater than 1.

So Paseau concludes that whichever interpretation of (A3*) we choose the argument is still invalid. According to the weaker version there are worlds where any two of the x_i fail to exist and according to the stronger version there are worlds where each of the x_i fail to exist. Neither of these claims in conjunction with (A1*) and (A2*) entail Rodriguez-Pereyra's intended conclusion.

Rodriguez-Pereyra⁴⁵ thinks that this objection is not fatal to his argument. His defence is that neither of Paseau's interpretations of (A3*) was the interpretation that he had intended and that the intended interpretation makes the argument valid. The intended interpretation is:

... the non-existence of each of those concreta* does not necessitate the existence of any other concreta*, not merely of the concreta* of which the first two premises speak.⁴⁶

(A3*) says that the non-existence of any one of *these things* does not necessitate the existence of any other *such thing*. Paseau had interpreted 'these things' and 'such thing' to be referring to the specific concreta* mentioned in (A1*) and (A2*) whereas Rodriguez-Pereyra and Baldwin had intended these phrases to refer to concreta* (and concreta in Baldwin's case) in general. This is why

⁴⁵ Rodriguez-Pereyra, "Metaphysical Nihilism Defended."

⁴⁶ Ibid.: 172.

Paseau can introduce o , some other object not referred to in (A1*) and (A2*) whereas on Rodriguez-Pereyra's interpretation of (A3*) this is not possible. Paseau has shown us that there is a model where none of the x_i mentioned in (A1*) and (A2*) exist in some world despite there being no empty world in that model. But Rodriguez-Pereyra has shown us that any model where there is a world with no concreta* at all is one with an empty world.

4.7 The balance sheet on the subtraction argument

Between Baldwin and Rodriguez-Pereyra we have two parallel arguments for the claim that there could have been no concrete objects. I think it is worth quoting the final version of the subtraction argument* in full so we can see exactly how the argument now stands formally:

(A1*) There is a possible world w_1 with a finite domain of concreta* objects, x_1, \dots, x_n .

(A2*) For each of the concreta* objects x_i in w_1 , there is a possible world w^* where x_i does not exist.

(A3*) The non-existence of any of the x_i that exist in w_1 does not necessitate the existence of any other concreta* object, whether or not these exist in w_1 . That is: for all worlds w and for all the concreta* x_i in w_1 , if x_i exists in w then if there is a world w^* where x_i does not exist, then there is a world w^{**} where the only existing concreta* are those of w except x_i (i.e. w^{**} is such that for every concreta* object y , y exists in w^{**} if and only if $y \neq x_i$ and y exists in w).⁴⁷

This combined with A4* appears to give us a valid argument, which concludes that there is an empty world accessible from this world. Alternatively, as Lowe has pointed out, if we use spatio-temporal locatedness as our criterion of concreteness and deny that concrete objects are infinitely divisible, then we can retain Baldwin's original (A1)-(A3). We would probably have to modify them

⁴⁷ Ibid.

slightly to disambiguate the issues raised by Paseau but this would not be difficult.

However, as I have pointed out, Rodriguez-Pereyra's version does rule out the existence of haecceities. If there are haecceities then nothing is concrete given the criterion of concreteness used by the subtraction argument. We will see below (see 5.1.3.3 below) that this is a more serious problem once we try to combine the subtraction argument with some account of the metaphysics of possible worlds.

5 WORLD AND OBJECT

The aim of my thesis is to look at the metaphysics of possible worlds. This breaks down into two issues: (i) what are possible worlds? (ii) is there an empty possible world? In looking at the first question I am looking at the different accounts of possible worlds – Lewisian realism, ersatzism, etc. In looking at the second question I am looking at the discussions of metaphysical nihilism, the modal ontological arguments, etc. In this chapter I am drawing these two strands together in order to show how the position we hold on one of these issues affects the position we should hold on the other.

In this chapter I will, firstly, give a general argument about the sorts of accounts of possible worlds that are compatible with metaphysical nihilism and secondly look at a specific attempt to combine metaphysical nihilism with a view about possible worlds.

5.1 Metaphysical nihilism, the subtraction argument and worlds

In this section I will argue that the proponents of the subtraction argument are either committed to an ersatz view of worlds or to the conjunction of what I shall be calling the container view of worlds and an absolutist account of space and time.

It is normally assumed that metaphysical nihilism (the claim that there could have been nothing) is a common sense position devoid of ontological commitment. However I will argue:

- (i) That nihilism is incompatible with what I call the compositional account of worlds.
- (ii) That the argument for nihilism (the subtraction argument) involves tacit acceptance of what I call the 'container' view of worlds.
- (iii) That this view requires an absolutist account of space and time.
- (iv) That nihilism is *prima facie* compatible with the ersatz view of worlds but
- (v) That nihilism and the subtraction argument in all their published forms are incompatible with most ersatz views and compatible only with those ersatz views that do not produce a very robust account of modality.
- (vi) That by changing the criterion of concreteness used in the subtraction argument it may be possible to develop an argument for nihilism that allows for a more robust ersatz account of worlds.

5.1.1 Metaphysical nihilism

Metaphysical nihilism, we will remember, is the claim that there is a world at which nothing concrete exists, i.e. an empty world. There is some debate as to whether a world at which no concrete objects exist is genuinely empty – might there not still be abstract objects? Well for the purposes of this discussion we will consider only a world at which no concrete objects exist and call that the empty world. This is not to beg the question of whether a world with only abstract objects is empty or not (I do discuss this question in 6.1 below), it is just to make a terminological stipulation. In this section, I will not argue either for or against

the claim that there is a world containing no concrete objects but rather will look at what else would have to be the case in order for this to be true.

5.1.2 *The subtraction argument*

The supporters of metaphysical nihilism usually advance the subtraction argument¹ or a modified version thereof.² I have already explained this argument but the outline of it is as follows. There could have been a finite number of concrete objects. Each concrete object is contingent – it could have not existed. The non-existence of any of these objects would not necessitate the existence of another one. Given these three premises we can assert the existence of a further world accessible from the one we are discussing such that at this new world one of the objects does not exist. If anything else depends for its existence on that object it too must not exist at this new world. By iterating this process (along with S4 or an equivalent or stronger modal logic) we eventually get to a world, w_{\min} where the non-existence of one of the objects implies the non-existence of all. From here w_{nil} the world with no concrete objects is accessible.

In order to explain the subtraction argument the following analogy can be made. Imagine a room containing a finite number of people. (For most readers, this will not require a great deal of imagination.) Any one of them could leave the room but the room would still be there. Furthermore, if any of them leaves the room there is no necessity that someone else should enter the room (or even be born in the room or pop into existence in the room). So eventually all of them could leave but the room would still be there. Similarly, according to the subtraction argument

¹ Baldwin, "There Might Be Nothing."

² Rodriguez-Pereyra, "There Might Be Nothing."

each concrete object may be missing in a given world suitably far away from our actual world and eventually we reach a world where there are no concrete objects but the world still remains.

5.1.3 Three views of worlds and objects

So what does this tell us about the relationship between worlds and objects in those worlds?³ What sort of view of worlds does this argument require? Well, a world must be the sort of thing that can 'hold' or contain concrete objects but might not hold or contain any such objects. Its existence is not dependent on its holding any objects: worlds are the sort of things that exist regardless of whether or not they contain any concrete objects at all. We will look at three views of worlds to see which, if any, are compatible with the subtraction argument.

5.1.3.1 The compositional view

The compositional view is the view that worlds are composed of concrete objects. There are two forms of compositionism: Lewisian and Armstrongian.

Lewis⁴ says the worlds are maximal sums of spatio-temporally related objects. The worldview required for the subtraction argument means that the worlds in question must not be mereologically composed of concrete objects. If worlds were composed of concrete objects, in the way Lewis suggests, then the world containing no concrete objects would not exist. This is because according to standard mereology the null sum is not a sum at all.⁵ So, if metaphysical nihilism

³ Some of the arguments in this section form part of Coggins, "World and Object: Metaphysical Nihilism and Three Accounts of Worlds."

⁴ Lewis, *On the Plurality of Worlds* 69.

⁵ Simons, P., *Parts: A Study in Ontology* (Oxford: Clarendon Press, 1987) 13.

is true, then the relationship between worlds and concrete objects must not be one of mereological composition. If worlds were sums of concrete objects there could not be a world containing no concrete objects.

Armstrong⁶ also advocates a version of the compositional view. Although, according to Armstrong's view, worlds are not mereological sums of concrete objects, they are nonetheless *constituted by* concrete objects.⁷ He explains this distinction:

The term 'constituent' replaces the term 'part' which I would once have used. This is because these constituents have a non-mereological relation to the properties and relations of which they are constituents.⁸

So Armstrongian possibilities are states of affairs which are constituted by individuals and universals. This is why it is a sort of compositionalist view and, hence, no Armstrongian world could exist without some concrete objects i.e. Armstrong's account of worlds is true if and only if metaphysical nihilism is false. He says that

... the simplest possible world will be a state of affairs of the form Fa , with F and a simple.⁹

(Of course Armstrong's position is motivated by his naturalism: his claim is that there are no non-natural, or non-spatio-temporal objects. He states this:

⁶ Armstrong, *A Combinatorial Theory of Possibility*.

⁷ Of course Armstrong wants to say that there are no other worlds as such but just combinations. His account still has all the features relevant to the compositional account – it's just not an account of worlds.

⁸ Armstrong, *A Combinatorial Theory of Possibility* 38-9. Further discussion of this distinction is to be found at Armstrong, *A Combinatorial Theory of Possibility* 41.

⁹ Armstrong, *A Combinatorial Theory of Possibility* 64.

Every systematic philosophy must give some account of the nature of possibility. The main constraint I wish to place on such an account is that it be compatible with *Naturalism*. The term 'Naturalism' is often used rather vaguely, but I shall understand by it the doctrine that nothing at all exists except the single world of space and time. So my objective is to give an account of possibility, which is in no way otherworldly.¹⁰

If there were to be an empty world then at that world there would be only abstract or non-natural objects. If, like Armstrong, we want to deny the existence of abstract objects, it seems inevitable that we must deny the existence of the empty world.)

Rather than the room analogy, the compositional account corresponds to an analogy suggested by Armstrong.¹¹ He says that an army will continue to exist if any given soldier leaves but that does not mean that the army can exist without any soldiers at all. This is analogous to the compositional account because it says that a world could have lacked any given object but it couldn't have lacked all of its objects, as it would no longer be a world.

So whether the sort of compositionism in question is mereological, as in Lewis' case, or of another kind, like that of Armstrong, compositionism about worlds and metaphysical nihilism cannot both be true.

5.1.3.2 The container view

So what other kind of relationship could hold between worlds and concrete objects? I use the phrase 'the container view of worlds' for the suggestion that the world is not *composed* of the other objects it contains, rather it is another object that *contains* them. According to the container view if we were able to

¹⁰ Ibid. 3.

¹¹ Ibid. 24.

count up all the objects *in* the world we would not have counted all the objects that *exist* as the world is a further object, which is not 'in' itself.

So perhaps the subtraction argument is making use of the container view of worlds. This is brought out in the room analogy as the room is a form of container in which there may or may not exist any people. The container view is certainly compatible with the subtraction argument. But does the container view make sense? What is this container? What ontological category does it belong to? What properties does it have?

What could the container be? Now one of the only things we know about the container is that it is the sort of thing that concrete objects could exist in. A good candidate for fitting this description is space-time. If the container is empty space-time then we have a fairly clear idea of what the relationship between the concrete objects and the world is. The world is the space-time within which concrete objects can exist and have location.

But there is a problem with this suggestion. Remember, my aim in this section is to work out what account of the nature of possible worlds is compatible with metaphysical nihilism. If the container is space and time and metaphysical nihilism is true (as we are assuming for now) then empty space-time must be able to exist on its own. This means accepting an absolutist or substantivalist account of space and time. Most philosophers and physicists hold that space and time are relational and would not exist 'empty' if there were no physical objects. If we accept this relationist account then the subtraction argument does not work. The room would simply not exist if there were no people in it.

Perhaps it could be objected that even if the relationist account of space-time is correct in this world the absolutist account could have been right. If this were true then there would be other possible worlds where space and time are absolute. The otherwise empty world would have to have absolute space and time.

But it seems implausible to say that space-time is relationist in this world but could have been absolute. This is particularly true because the difference between these two accounts is so great. The absolutist account seems to talk about something so different from the relationist account that it's hard to see how one could have been the other.

It should be pointed out that the sort of possibility we are referring to here is metaphysical rather than epistemic possibility. In order for the proposition 'time could have been absolute' to be true, and to do the job that the supporter of the conjunction of the container view and metaphysical nihilism wants it to do, the 'could' must be a metaphysical could. The claim is not the epistemic claim that 'for all we know (about the actual world) Newton's account of absolute time and space might be correct'. Rather it is the metaphysical claim that that account, though false at our world, is really true at some other possible world accessible from here.

I am not arguing here that absolutism about space and time is wrong. My point is that if the only account of possible worlds that is compatible with nihilism requires that space and time be absolute then that is a problem for nihilism. It is a problem for two reasons. Firstly, most philosophers will reject it simply because it conflicts with their beliefs about space and time. Secondly, it is a problem with

a philosophical theory if it entails some controversial view about an otherwise relatively separate branch of philosophy.

But there are further problems for the container view. What properties does the container have? Is it abstract or concrete? If the container is abstract (take whatever account of abstractness you prefer e.g. is not temporal, cannot engage in causal interactions, satisfies the identity of indiscernibles) then it is hard to know how it could 'contain' concrete objects. Does containment become merely metaphorical? Abstract objects can be instantiated by concrete ones (in the case of universals) and they can have concrete objects as members (in the case of sets) but can they contain concrete ones? It's hard to see what sense this makes. If the world is abstract and the contents of the world include concrete things then the world must not be a container.

If the container is not abstract then surely it must be concrete. But if the container is concrete then w_{nil} is not a world with no concrete objects – there exists a concrete object at w_{nil} – the world. It could be objected that if the world is concrete, w_{nil} still *contains* no concrete object as the world does not contain itself. However we can still say that w_{nil} is not a world where there are no concrete objects. If you ask the question at w_{nil} 'are there any concrete objects?' the answer must be 'yes'. The question 'does the world *contain* any concrete objects?' would require a negative answer but that is not enough for metaphysical nihilism. Using the terminology of the subtraction argument we would want to say this is not really w_{nil} but actually w_{min} – the world with the minimum number of concrete objects. Surely we could subtract that object too? But on this account of worlds, there is no world that can be described as ' w_{min} minus one object'. So although there is no world where it is true to say 'there are

no concrete objects' there is a world at which it is true to say 'there are no concrete objects in the world.' Surely the first unrestricted claim is metaphysical nihilism rather than the second narrower claim. So it seems that if worlds are containers then they can neither be abstract nor concrete.

Two ways out of this emerge: (i) we could say that some worlds are concrete (those that contain some concrete objects) whilst some are abstract (including w_{nil}) or (ii) we could say that worlds are neither abstract nor concrete. The first seems arbitrary and metaphysical dubious. How could different worlds all be worlds and yet some be abstract and some concrete?

The second alternative is to deny that the abstract-concrete distinction is collectively exhaustive, to say that worlds are neither abstract nor concrete. Given the amount of dispute concerning the nature of the abstract-concrete distinction this might seem like a good suggestion. However, if we do this, the problem just re-appears. One popular account of the abstract-concrete distinction suggests that to be concrete is to exist in time. If we get rid of the word 'concrete' we can run the same argument. If the world is a container it must either exist in time or not exist in time. If it exists in time then at the empty world there is something that exists in time so it seems strange to say it is empty. If it does not exist in time then it is impossible to grasp how it could 'contain' physical objects, which do exist in time. Another alternative is that the container is time. However, as we have seen, this means that either we must accept absolute time, or we must deny the existence of the empty world.

So if metaphysical nihilism is true, then the only case in which the container view makes sense is if time is possibly absolute and so there is at least one world (w_{nil}) where time exists on its own without any concrete objects.

Although I haven't cited any published sources where the container view is explicitly held, I think it is latent in many discussions of the subtraction argument. An example is the analogy with a room, which I cited. It is also latent in our pre-philosophical intuitions about what this world is. We talk about things *in* the world, etc. This is why I consider it worthwhile to discuss it. In a similar way Lewis argues against 'magical ersatzism' – not because anyone explicitly endorses it but because he thinks it is a latent assumption in many more respectable views.

We can see a few examples of where it is latent in philosophical discussions of metaphysical nihilism. Baldwin uses the phrase 'contain' in his discussion of the subtraction argument:

...by (A3), the domain of w_2 does not contain things which do not exist in w_1 ...¹²

Nonetheless within a few lines Baldwin refers to a world

... w_{\min} whose domain consists of one or more concrete objects...¹³

which seems to be a compositional view of worlds.

Baldwin also refers to metaphysical nihilism as an 'empty case' and we talk about the 'empty world' which seems to assume a view of worlds as objects which could be empty or could contain things.

I think Baldwin's aim is to be noncommittal – to give an argument for metaphysical nihilism but avoid commitment to any particular account of worlds. My point is that this agnosticism about the nature of worlds is not really

¹² Baldwin, "There Might Be Nothing," 232.

¹³ Ibid.



agnosticism and hides the fact that the idea that worlds are containers is latent in this discussion. As I have shown, this idea is incoherent when cashed out.

5.1.3.3 The ersatz view

We've looked at the compositional account and the container view of worlds and saw that except in one very particular circumstance they are not compatible with the subtraction argument. Is there any other view of worlds that would work? Well, there is the view accepted most notably by Plantinga that worlds are neither composed of concrete objects nor containers for concrete objects. For want of a better word let's call this the ersatz account.¹⁴ According to the ersatz account worlds are maximally consistent ways things could have been. They are representational and they are the sort of things (or collections of the sorts of things) *according to which* physical objects exist. They are not things *in which* concrete objects exist. This is analogous to novels or works of fiction. Concrete objects do not exist in novels, nor are novels composed of concrete objects, but novels are the sorts of things according to which concrete objects can exist or not exist.

This view can be cashed out in terms of states of affairs, propositions, novels, etc. All these accounts share the feature relevant to this discussion. Leibniz's account, which says that worlds are ideas in the mind of God, is also a version of this view. This is because Leibniz explains these ideas as things according to

¹⁴ The word 'ersatz' is used to cover a broad spectrum of views. For now I am understanding it just to mean any account where possible worlds are those things (or sets of those things) *according to which* objects exist, donkeys talk, etc. Armstrong, for example is obviously using a broader understanding of the term when he refers to his account as an ersatz account (Armstrong, *A Combinatorial Theory of Possibility* 4-5.) I don't apologise for categorising the different accounts of worlds differently to the way they have previously been categorised. Indeed, this is exactly my point. I want to say that, from the point of view of discussing metaphysical nihilism, my categorisation of the different accounts of possible worlds is more accurate and useful than the simple Lewis – versus – ersatzism distinction.

which such-and-such is the case. That is, if some other idea had been actualised rather than this one the world would have been constructed according to the specifications of that idea. Ersatz views can be expressed in terms of sets e.g. sets of propositions. In this case the sets themselves are not the sorts of things according to which something could be the case but the propositions in those sets are. Hence it is an ersatz or representational account of worlds. (I discuss this possibility in more detail in 5.1.4 below.)

This view certainly appears to be compatible with the subtraction argument. This is because the non-existence of concrete objects seems to be a maximally consistent way things could have been. The premises of the subtraction argument also seem to be consistent with this account – a world with a finite number of concrete objects (or concrete* objects) is a maximally consistent way things could have been. So is a world just like that one but minus any one of its objects, etc.

So it seems that there is a reasonable account of what a world is which is compatible with the subtraction argument. The original analogy concerning the people in the room corresponds to the container view of worlds. The compositional account corresponds to Armstrong's army analogy. Where does the ersatz account of worlds stand with these analogies? Well, it could be said that the world is like a club or society that is governed by certain rules.¹⁵ These rules would determine who could be a member, what the society does, where it meets, etc. Now suppose the last members die or the society stops meeting: given that the identity and existence of the club depends on the rules governing it we

¹⁵ This analogy was suggested to me by Tom Stoneham.

would not necessarily want to say that the club had ceased to exist. Rather we might say it has no members at the current time. This intuition is strengthened when we consider that new members could join or the old members could re-subscribe and start meeting again even after several years. There are certain rules that govern whether or not someone is a member of the club and these hold true even if no one is a member at a given time. Likewise in the ersatz account of worlds, there are certain considerations that determine whether any physical objects exist according to a given possible world. These hold true at every world, even one according to which there are no physical objects.

So far it seems as if metaphysical nihilism must be compatible with an ersatz account of worlds. Now we must remember that metaphysical nihilism and the subtraction argument are two separate but closely related issues. The subtraction argument is an argument for metaphysical nihilism. More importantly, it is, effectively, the only argument for metaphysical nihilism. It is the nihilist's answer to those who claim that nihilism is a naïve position advocated only by those who have not thought through the implications of their theory for the philosophy of modality. This is the claim made by Armstrong:

Philosophers are inclined to say, off-hand, that there could have been nothing at all. But this is only to follow out a relatively superficial line of reasoning.¹⁶

The subtraction argument is the only defence the nihilists have offered against this accusation, so if we can show that this has problematic consequences then it is a problem for nihilism in general. This is precisely what I will do now. I will argue that whilst nihilism itself seems to be *prima facie* compatible with the

¹⁶ Armstrong, *A Combinatorial Theory of Possibility* 64.

ersatz account of worlds, the subtraction argument as it stands, the only argument for nihilism, is not compatible with any adequate version of the ersatz account.

My argument turns on the fact that the subtraction argument and the subtraction argument* are both incompatible with the existence of essences or haecceities. However, essences or haecceities are necessary for a robust ersatzism. I have laid out the argument that the subtraction argument in all its forms is incompatible with the existence of essences or haecceities in another paper.¹⁷ This argument turns on the use of failure to satisfy the identity of indiscernibles as a necessary condition for concreteness. What remains to be seen is how and why an ersatz account of worlds requires haecceities.

There are a few reasons why ersatzers need haecceities (see my discussion of the third challenge for actualism in 3.1 above). (All ersatzers are of course actualists as they seek to explain modal claims without reference to mere possibilia.) The third challenge put to actualism is to explain, without reference to merely possible objects, how we can account for the fact that there could have been some objects other than those that actually exist. The actualist needs essences or haecceities to answer this. The argument is that although an object, *o*, does not exist at this world, its essence does. This essence can be involved in non-obtaining states of affairs. So non-obtaining states of affairs involving this object exist at this world and hence explain how modal truths about *o* (such as that it could have existed) are true.¹⁸

¹⁷ Coggins, "World and Object: Metaphysical Nihilism and Three Accounts of Worlds."

¹⁸ This is Plantinga's account but similar accounts are needed by all actualists who want to claim that there could have existed objects other than those that actually exist or that there could have existed two different objects neither of which actually exist.

Bearing this in mind, let's look at Baldwin's account of possible worlds to see if his metaphysical nihilism is compatible with his views on possible worlds.

It is not surprising that Baldwin¹⁹ advocates a view that conforms to what we are calling an ersatz view of worlds. It is a form of fictionalism. It is ersatz in my sense because it says that worlds are the sort of things according to which certain claims are true. Although he describes his position as fictionalist, it seems to be closer to linguistic ersatzism. He claims that worlds are fictions and if these fictions were true then those worlds would have been actual. However, he claims that we do not actually need to have linguistic fictions: instead, as the linguistic ersatzers do, he claims that the languages that these fictions are written in can be Lagadonian. This means that each object is the word for itself and each property is its own predicate. He says

... possibilities do not need linguistic representations. Instead they are best represented in a 'Lagadonian' fashion ... whereby objects and properties represent themselves, and possible states of affairs are represented by sequences of properties and objects, which can be assumed to exist if the properties and objects do... the actual world is distinguished from all other worlds precisely by not being fictional: it is represented by the totality of Lagadonian representations which represent actual states of affairs ... possible worlds are possibilities represented by totalities of consistent representations.²⁰

This account of Baldwin's has one surprising consequence. He must deny the standard reductionist claim for modalities: P is possible if and only if there is some possible world at which P is the case. However he does not need to reject this claim outright, which would be controversial, he needs only to make a small change. He rephrases it as:

¹⁹ Baldwin, T., *Contemporary Philosophy: Philosophy in English since 1945* (Oxford: Oxford University Press, 2001) 140-3.

²⁰ Ibid. 141.

Possible truth is truth according to some consistent representation of a world, rather than truth in some possible world.²¹

This is because Baldwin's account emphasises the difference between representations of worlds (which are real) and the worlds themselves (which are not real for Baldwin).

So that's Baldwin's position – how does it fit in with my analysis? The problem I identified for the philosopher who wants to maintain both ersatzism and metaphysical nihilism is that given the criterion of concreteness specified in all versions of the subtraction argument, they are unable to satisfy my third challenge to actualism. Without haecceities or essences (which are ruled out by the criterion of concreteness) and without mere possibilia (which are ruled out by actualism) how can they explain the fact that there could have been some objects other than those that do actually exist.

Well, does this criticism trouble Baldwin's account? I think, given the brevity of Baldwin's account, it is best to look for an answer to this question in the closest relation to Baldwin's theory. (And, anyway, we are more interested in whether any account of worlds is compatible with the subtraction argument than in the exegesis of the work of any individual philosopher.) The closest relation as I said is linguistic ersatzism like that advocated by Melia.²² I have discussed this position in detail in section 3.2.1 above. The relevant point for this discussion is what Bricker²³ calls the problem of descriptive impoverishment. This is a problem for any account that relies on a Lagadonian language for its possibilities.

²¹ Ibid. 142.

²² Melia, "Reducing Possibilities to Language."

²³ Bricker, "Reducing Possible Worlds to Language," 349ff.

This language will give us names for all the objects that actually exist but won't give us names for those that don't.

Melia²⁴ replies by pointing out that we can express the idea that some non-actual object could have existed by saying that there could exist some object *x*, such that *x* is not identical to any of the actually existing things. This represents a possible world where some object exists that does not exist in the actual world.

But a problem occurs when we try to distinguish between different non-actual objects. I could have been one of triplets – all female. Now any Lagadonian account of modality will be unable to distinguish between these two possible sisters. In fact they are unable to distinguish between any cases of non-actual objects, which share all their intrinsic properties.²⁵ The world where one of my sisters, let's call her Anne, is an astronaut and the other sister, let's call her Jane, is a philosopher is not distinct from one where Jane is an astronaut and Anne is a philosopher. All possibilities involving similar non-actual objects are conflated in a Lagadonian account.

Melia thinks that this is a trivial problem. He denies that worlds are complete and is willing to accept this consequence. It is interesting to note that Baldwin refers to worlds as totalities. Perhaps his account is more vulnerable to my objection than Melia's account is for this reason.

I will not argue against Melia's claim that we should accept the incompleteness of other possible worlds here. But the conclusion we can draw is that the only version of ersatzism which metaphysical nihilism and the subtraction argument

²⁴ Melia, "Reducing Possibilities to Language," 20.

²⁵ Electrons are a paradigmatic instance of this as all electrons have the same intrinsic properties.

in its current form are compatible with is some form of haecceity-free account like Lagadonianism. No haecceity-free ersatz account can avoid this problem – they are committed by their Lagadonianism to conflating diverse worlds containing objects that do not exist in the actual world, to just one incomplete possibility.

If we want to adopt metaphysical nihilism and the subtraction argument in its current form then we are committed to conflating possibilities involving non-actual objects. If this is not acceptable then we must reject either metaphysical nihilism or the subtraction argument.

Finally, we should note that it is the criterion of concreteness used by the nihilists rather than anything more central to nihilism that leads to this conflict between nihilism and robust accounts of possible worlds. I suggest that the subtraction argument can be re-written using a different criterion of concreteness which may lead to a position compatible with some more robust views of worlds.

As we have seen there are several issues that need to be considered in the subtraction argument so I will start in the next chapter by considering whether or not we can re-write it and so find a version that is compatible with some more robust accounts of worlds.

5.1.4 What about sets?

There are a number of questions that come to mind after considering the arguments in the last few sections but many of them can be summed up under the umbrella question ‘what about sets?’ The basic idea is that worlds could be sets of some kind and that this is something I need to take into account in my arguments. As there is an empty set, the thought goes, if worlds are sets then

there can be an empty world. I can distinguish four different ways that this question can meaningfully be asked and I will deal with them now. The four options are (i) that sets are an example of the compositional view and so my claim that the compositional view is incompatible with metaphysical nihilism is false, (ii) that sets contain their elements and as there is an empty set, they give a counterexample to my claim that there could not be an empty container (iii) that sets are some sort of ersatz entities and (iv) that sets are a fourth account of worlds that doesn't fit into any of the categories I have given.

The claim that worlds are sets is not a version of the compositional view. This is because the set-membership relationship is radically different from both the part-whole relationship in mereology and the sort of compositionism advocated by Armstrong. If anyone is unconvinced by the claim that set-membership is radically different from the part-whole relationship here are two simple disanalogies. A set containing concrete objects is itself an abstract object (unless one holds a very radical philosophy of sets) whereas the mereological sum of a group of concrete objects is a concrete object. Secondly, mereological parthood is a transitive relationship whereas set membership is not.²⁶ The set {3,4} is a member of the set of two-membered sets whereas 3 and 4, the members of {3,4} are not themselves members of the set of two-membered sets. In contrast, any molecules that are parts of the leg of my chair are also parts of the chair.

Armstrong is compositionalist but his sort of composition is different from the mereological composition advocated by Lewis. However, disanalogies with set-membership are again available. Armstrong considers possibilities to be

²⁶ This example was suggested to me by Jonathan Lowe.

maximally consistent states of affairs. These states of affairs are composed of particulars and properties. A state of affairs composed of concrete entities, like particulars and instantiated properties, is concrete, whereas a set of particulars and properties is abstract. The form of composition advocated by Armstrong is also transitive. Set membership, as we have seen, is not transitive.

So if worlds are sets then they don't fit into the compositional view of worlds.

The second option is to say that the world is a set where we see the world as a container. I have argued against this claim but perhaps the philosopher who thinks the world is a set could object to my arguments. As sets are abstract objects, it seems as though the step in my argument they would reject is my claim that abstract objects cannot literally contain concrete objects. They would say that as sets contain their members, even if their members are concrete, abstract objects can contain concrete objects.

However I think that this objection is flawed. This is because sets do not literally contain their objects. Remember that the container view is the account of worlds that I found implicit in the subtraction argument. I think that the transitivity arguments I used above can also be used against this suggestion. This is because the sort of containment described in the container view is transitive whereas the set-membership relationship, as we have seen, is not. That the containment relationship is transitive can be seen by considering again the room analogy. If the room contains a box and the box in turn contains a pen, then the room also contains the pen.

So there is a disanalogy between the container view and the idea that the world is a set. So if the world is a set, the container view must not be right.

The third version of this objection, the claim that the world is a set where a world is some sort of ersatz object, is the option that is most plausible. This is because some versions of ersatzism do say that the world is a set. For example the world could be a set of propositions. This would be an ersatz world because the propositions would be the things according to which something is the case. I am happy to admit that these sorts of worlds are plausible and compatible with metaphysical nihilism. They are within the range of ersatz views I have discussed before.

However, those philosophers who object to my arguments tend to think that worlds are not sets of propositions, or ersatz entities in this sense, rather they are sets of concrete (and maybe also abstract) objects. They are sets containing all the objects that exist in that world. This is not an ersatz view. Neither, as we have seen, is it a compositionalist or container view. Hence, if it is a plausible view at all it is a fourth view.

I now want to argue that this fourth view is not convincing. The idea is that the world containing x , y and z actually is a set $\{x, y, z, \dots\}$.²⁷ (The other elements would include the unit sets of these objects, the null set, and combinations of these.) Let's leave aside for now the question of whether or not the actual world is a set, like all the others, or this world is something else. I will try to argue against the strongest possible version of this view and so will accept which ever of these two options makes the view most plausible.

²⁷ In fact, we will see later that it is probably a proper class rather than a set, but it is at least a set-like object i.e. the sort of thing that can have members or elements. Where I say 'sets' in this discussion, I usually mean set-like objects, unless I have specified otherwise, for example, by contrasting them with proper classes.

One problem with this view is the question of how there can be worlds which contain non-actual objects. In an actualist philosophy, it seems implausible to suggest that a set could exist in a world where some of its members did not exist.²⁸ So if one were to accept this view one would have to (a) be a possibilist or (b) reject the claim that an actualist can only accept the existence of sets in worlds where their members exist or (c) radically reduce the number of possibilities available so that the only possibilities which are real are those that involve actual objects.

(c) sounds very radical and implausible: rejecting the idea that worlds are sets would surely be preferable to this.

As for (b), it seems convincing to say that a set could not exist without its members. The identity of a set is determined by its members, so it's hard to see how it could exist without those members existing. You could say that there is a set containing a unicorn or Sherlock Holmes and so sets can exist in worlds where their members do not exist. However, this is not convincing. The problem can be seen when I ask questions like 'which unicorn does that set contain'? I think that if there are sets containing fictional objects, then (assuming an actualist metaphysics) the fictional objects they contain are abstract entities that do exist in this world rather than concrete, non-actual objects.

So that leaves us with (a). (a) means accepting possibilism, the view that Lewis advocates, that claims that there are non-actual objects. Let's try to cash out this view. So our assumptions are (i) that worlds are sets and (ii) that there are non-actual objects which exist in other non-actual worlds. So these non-actual worlds

²⁸ Lowe makes this assumption in Lowe, "Metaphysical Nihilism and the Subtraction Argument," 67.

are sets containing non-actual objects. However, it's not clear what work the claim that worlds are sets is doing here. If there are objects in a world so that the world-set is non-empty then there also exists a mereological sum of all the objects in that world. Why not just say that that is the world? I suppose if one believed in metaphysical nihilism and in the arguments I have given above then one might cite these as reasons for saying that the world is the set containing all the objects in the world rather than the sum of those objects. But what about the empty world? The empty world would either be the set of all the necessary abstract objects or the null set. Now it's interesting to note that both of those sets exist in this world. This seems to fit uneasily with possibilism. If the other worlds are supposedly non-actual objects then it would be strange if they were actual objects. Of course, this may be good reason for saying that worlds are proper classes rather than sets. (I discuss this further in 5.2.2 below.)

There are several other problems with the claim that worlds are sets. The central problem among these is what I call the problem of structure. The problem is that the objects in the world are essentially related to each other.²⁹ In contrast the members of a set bear no substantive relations to each other. Sets, in and of themselves, impose no order or structure on their members. While it's true that for any world there is a set which contains all and only the objects in that world, there seems to be something confused in claiming that that set is the world. So if we call our world-set, W_1 , and the objects in the world, $o_1, o_2, \dots o_n$ then $W_1 = \{o_1, o_2, o_3, \dots o_n\}$: but surely this set is just a model of the world, not the world itself.

²⁹ A similar argument (although about facts, rather than physical objects) is given in Grossman, R., *The Existence of the World* (London: Routledge, 1992) 84.

There is a set containing me and all the other people in this library now and all the books and shelves, etc. but that set is not the library itself.

One could object to this that we can impose order and structure on sets. We do this by including in our set, not just the objects in the world but also the relationships between those objects. So our world set is larger than the one I've suggested above, it also contains properties, P_i , and relations, R_i . The set is $W_2 = \{o_1, o_2, o_3, \dots o_n, P_1, P_2, \dots P_m, R_1, R_2, \dots R_k\}$.³⁰ But this option is not satisfactory either as there are numerous worlds that fit this description – there is one world where object o_1 stands in relation R_1 to object o_2 and another where all those objects and relations exist but the relations are instantiated differently. This way of dividing up worlds conflates all these different possibilities and so it is unsatisfactory.

But the friends of the claim that worlds are sets are not beaten by this. They say things like 'you can do that with ordered n-tuples'. The idea is that the world is not only the set of all the objects, properties and relations that hold in that world: it also contains as elements ordered n-tuples that describe the patterns of relationships between those objects. Our world-set now looks like this $W_3 = \{o_1, o_2, \dots o_n, P_1, P_2, \dots P_m, R_1, R_2, \dots R_k, \langle P_1, o_1 \rangle, \dots \langle P_m, o_n \rangle, \langle R_1, o_2, o_3 \rangle, \dots \langle R_k, o_n, o_n \rangle, \dots\}$ where the ordered pair $\langle P_i, o_i \rangle$ represents an object which has a certain property and the ordered triple $\langle R_i, o_i, o_i \rangle$ represents the fact that two objects stand in a certain relation to each other. Surely we now have a

³⁰ In any ways in which my notation is not agnostic between different accounts of properties and universals, I am sure it can be re-written so as to be compatible with any particular theory of universals.

completely determined world? Isn't this what the advocate of the claim that the world is a set wanted?

Well, yes and no. We have been able to use set notation to express world-sized possibilities but in doing so I think we have ventured away from our original claim that the world is a set. The idea is that worlds are sets of objects, properties, relations, and ordered n -tuples that describe the patterns of properties and relations between the objects. But what are these n -tuples? N -tuples are surely not one of the fundamental kinds that reality is made up of, they are abstract entities – it seems strange to think of a world being made of them. Really what the n -tuples are doing is describing or expressing how the world is. This is something more like the ersatz account of worlds than the fourth account that sees worlds as sets. In fact the n -tuples represent states of affairs, ways things could have been or descriptions of ways things could have been (depending on whether one takes an Armstrong-like compositionalist approach to states of affairs or a Plantinga-like ersatz approach to states of affairs). As such they fit into my ersatz camp (for Plantinga-like accounts) or the compositionalist camp (for Armstrong-like accounts).

If one is committed to states of affairs anyway, its hard to see what's the point in having worlds as sets. Surely we could just say that those states of affairs are the worlds. Those who are compositionalist about states of affairs will not be able to advocate metaphysical nihilism. This is because once they analyse the metaphysics of their ordered n -tuples they will see that there cannot be anything represented by empty n -tuples in this way. In that alleged world with no states of affairs there will be no objects or properties or relations either.

Those who advocate a Plantinga-like account of states of affairs can retain metaphysical nihilism but are essentially ersatz theorists and so pose no problem to my claim that only an ersatz account is compatible with nihilism. This is because the sets which they claim are worlds are not just sets of objects but sets of ways things could have been, the sort of things according to which something could have been the case.

5.1.5 Conclusion

We have seen that if we want to hold metaphysical nihilism and use the subtraction argument we must (i) deny the compositional account of worlds, (ii) deny the container view (unless we are willing to accept that absolute time is metaphysically possible) and (iii) accept the ersatz view. So the analogy of people leaving a room is not appropriate to explaining the subtraction argument (as it involves implicit acceptance of the container view). Likewise Armstrong's analogy of the army is incompatible with the subtraction argument (as it involves acceptance of the compositional view). The appropriate analogy is that of a club whose existence and identity is determined by the club rules regardless of whether or not there are any members. It's hard to see how there could be a plausible fourth option where worlds are seen as sets that does not collapse into one of the first three options.

5.2 Rodriguez-Pereyra's position

My arguments have shown that there seems to be no point to saying worlds are sets (except where this claim is a version of ersatzism). If we want to say that worlds are sets we have to also embrace Lewisian possibilism and acknowledge the existence of states of affairs. My argument is that there is then no point in

saying that there is also a set containing all these things. It just seems superfluous. However there is a possible objection to this view. If we could show that this claim that worlds are set-like objects (in a non-ersatz way) is compatible with metaphysical nihilism, then if metaphysical nihilism were true, we might have a good reason for accepting this view of worlds. This is exactly the sort of argument that Rodriguez-Pereyra³¹ runs and we will look at his suggestion now.

Lewis³² amongst others has assumed that genuine modal realism and metaphysical nihilism are incompatible. Genuine modal realism (as Lewis describes it) is a form of the compositional view of worlds, which I have shown to be incompatible with metaphysical nihilism (see 5.1.3.1 above). However, Rodriguez-Pereyra argues that metaphysical nihilism is compatible with a form of modal realism. While he does accept a modified form of Lewisian modal realism, it is precisely Lewis's compositionism that he modifies.

Rodriguez-Pereyra defines the two theses under discussion as follows:

Metaphysical nihilism: (1) it is possible that nothing concrete exists.³³

Modal Realism: (2) Merely possible worlds exist and are of a kind with the actual world.³⁴

There are two unclear expressions here – firstly 'concrete' can mean physical, spatio-temporal, causal or can have any of a number of other interpretations. Rodriguez-Pereyra says that spatio-temporal objects are concrete but doesn't say what criterion of concreteness he is using. Secondly, 'of a kind' is a seemingly

³¹ Rodriguez-Pereyra, G., "Modal Realism and Metaphysical Nihilism" (paper presented at the Joint Session, York, 2001).

³² Lewis, *On the Plurality of Worlds* 73ff.

³³ Rodriguez-Pereyra, "Modal Realism and Metaphysical Nihilism", 1.

³⁴ *Ibid.*, 2.

inoffensive little phrase but actually carries quite a lot of metaphysical weight. I have argued elsewhere (see 2.2 above) that Lewis's characterisation of other merely possible worlds as being 'of a kind' with our own world is ambiguous and needs clarification. We will look at both of these phrases later.

5.2.1 Rodriguez-Pereyra's negative argument

At first glance (1) and (2) do not appear to be incompatible so where is the problem? Specifically, the characterisation of modal realism given in (2) does not entail compositionism about worlds, so the incompatibility I pointed out between compositionism and metaphysical nihilism is not present here. According to Rodriguez-Pereyra the problem occurs when these two claims are combined with some other claims commonly held about modality, particularly commonly held by modal realists. He gives us an inconsistent quadrant:

- (1) It is possible that nothing concrete exists. (Metaphysical nihilism)³⁵
- (4)³⁶ A possible world is a maximal sum of spatio-temporally related objects.
- (5) Spatio-temporally related objects are concrete objects.
- (6) A sentence like 'it is possible that p' is true just in case there is a possible world where p.³⁷

These four theses result in a contradiction. If they are all true then

the world in which nothing concrete exists is a world where some concrete objects exist.³⁸

³⁵ Of course, Lewis does not accept concrete / abstract distinction and so might have trouble with Rodriguez-Pereyra's characterisation of metaphysical nihilism, however it will be seen further on that the use of these terms is irrelevant to the overall argument. The argument would run just as well without the terms 'concrete' and 'abstract'.

³⁶ I've retained Rodriguez-Pereyra's numbering as I do discuss each of his claims.

³⁷ Rodriguez-Pereyra, "Modal Realism and Metaphysical Nihilism", 3.

³⁸ Ibid.

Hence, if (1) (metaphysical nihilism) is true then only two of 4, 5 and 6 can be true – all three cannot be true.

(6) Is held not only by modal realists but also by nearly all philosophers who discuss modality. Furthermore, the motivation for modal realism is to give a plausible ‘cashing out’ of this claim. So we don’t want to reject (6).

If one wanted to query (5) then (1) could be reformulated so that the inconsistency re-occurs.³⁹

So the only claim we can deny is (4). If we deny (4) then we must deny either (2) (modal realism) or

(3) The actual world is a maximal sum of spatio-temporally related objects.⁴⁰

As (2) is modal realism, which Rodriguez-Pereyra is trying to save, then he must reject (3). In order to do this legitimately he sets himself three challenges – he must (a) give a reason why (3) is not true, (b) explain what kind of thing the actual world is, so that (2) has content and

(c) show that there is a world where no concrete objects exist and that this world is of a kind with the actual world.⁴¹

So in order to maintain both (1) and (2) Rodriguez-Pereyra must reject (3) and (4).

³⁹ Ibid., 4.

⁴⁰ Ibid., 2.

⁴¹ Ibid., 5.

5.2.2 *Rodriguez-Pereyra's positive argument*

Rodriguez-Pereyra therefore tries to reformulate the description of the actual world given in (3) in a way that avoids the apparent contradiction between (1) and (2). In order to do this he develops the notion of a sum* as follows:

S is a sum* iff (a) S is a sum of memberless objects and (b) if any object in S has a duplicate that is spatio-temporally related to any object, then everything in S is spatio-temporally related to everything in S.⁴²

He also invokes the existence of certain abstracta, namely sets. He claims that pure sets exist and are necessarily abstract. I.e. in every world in which pure sets exist, they lack spatio-temporal location. As Rodriguez-Pereyra believes that pure sets are independent – i.e. their existence does not depend on the existence of any other objects or kinds of objects, he believes that there is a world where only pure sets exist. This world is called W_{pure} .

When Rodriguez-Pereyra refers to the duplicate of an object he means that

a duplicate of an object x is any object having the same intrinsic properties as x.⁴³

Now the concrete objects in the actual world form a sum*. The empty set is also a sum*. So the sum of the concrete objects in the actual world and the null set are 'of a kind'. However, Rodriguez-Pereyra has not yet proved that the actual world and the empty world are of a kind. This is because the actual world, he claims, is not just a sum of concrete objects but also contains abstract objects (pure sets).

In order to finish off the argument Rodriguez-Pereyra claims that the actual world, and hence by (2) the other merely possible worlds, are collections of

⁴² Ibid., 9.

⁴³ Ibid., 9-10.

... a maximal sum* and its set-theoretical expansion.⁴⁴

And what is a set-theoretical expansion?

The set-theoretical expansion of a sum S consists of (a) the sets formed from the (proper or improper) parts of S ; (b) the subsets of the sets in (a); (c) the sets formed from the sets in (b); and (d) the sets formed from any combination of parts of S , sets in (a), sets in (b), sets in (c), and any sums thereof.⁴⁵

Both the actual world and the other worlds, including W_{pure} , are such collections.

So they are 'of a kind'. Hence Rodriguez-Pereyra has shown that metaphysical nihilism (it is possible that nothing concrete exists) and modal realism (merely possible worlds exist and are of a kind with the actual world) can both be true.

As to what kind of collections worlds are, Rodriguez-Pereyra tends to think they are proper classes. They cannot be sets as each world contains all the sets that exist. So if worlds are set-like objects, they are proper classes. He also suggests that they may be sums or mere pluralities.

5.2.3 *The problem with memberlessness*

I want to consider the clause in Rodriguez-Pereyra's definition of a world that involves memberlessness.

Firstly I want to argue that a sum* is not a genuine class of entity or ontological category. The argument Rodriguez-Pereyra has offered is that there are certain common features between the things that are sums* such that it is legitimate to class them together. These common features are being memberless and being potential base-elements in a set-theoretical hierarchy.

⁴⁴ Ibid., 10.

⁴⁵ Ibid., 8.

Our examples of sums* are the null set and the sum of the concrete objects in the actual world. It is certainly true that both of these objects can be at the bottom of a set-theoretical hierarchy but that in itself is not sufficient to make them a unique metaphysical category. I can't think of any entity except proper classes that couldn't be at the bottom of the set-theoretical hierarchy. If practically any object could do this job then there is no metaphysical significance in the fact that various objects have this feature in common. There is no sense in which dividing the world into proper classes and everything else is carving reality at the joints. It's more like cutting off a fingertip.

What about memberlessness – can this characteristic provide proof of a distinct ontological category? I suggest that it cannot. This is because Rodriguez-Pereyra uses the notion of memberlessness in a strange way. The null set is by definition memberless. My pen is also memberless. Now Rodriguez-Pereyra claims that this is a feature that the two objects have in common. However, it seems to me that having members is a property that only sets have. (Obviously social groups, political parties, secret societies, the human race and armies all have members but the sense of 'membership' we are talking about is set-membership. Set membership is also the only kind of membership that Rodriguez-Pereyra seems to be thinking of.) The null set is interesting because it is a set (the kind of thing that could have members) but does not have any members. Rodriguez-Pereyra wants us to believe that the null set and physical objects share this feature of being memberless, but it seems that this is not the case in anything but the least significant way.

An analogy is available with being married. I am not married and neither is my pen. Does this mean there is a significant property, which my pen and I have in

common – the property of being unmarried? No, I am the kind of thing which could get married or could not whereas my pen does not have the option of getting married. In order for two objects to belong to the same ontological category there has to be more in common between them than this. Sets are not just the kinds of things that could have members but are *essentially* the kinds of things that could have members. So while the null set is memberless, my pen, although having no members could hardly be described as being memberless just as it is unlikely to be described as being unmarried. It is metaphysically impossible for my pen to have members, as it's just not that kind of thing. This shows that there is no metaphysically significant understanding of membership according to which my pen and the null set are 'of a kind'. To suggest that there is is to make a category error.

Perhaps we need two notions of memberlessness in order to clarify this distinction. The null set is memberless₁ as it is the sort of thing, which could have members (a set) but happens to not have any. My pen is memberless₂ as it is not the sort of thing that could have members.

Of course there is an important sense in which the null set *could not* have members. Usually in discussions of modality we would paraphrase a sentence like 'the null set could have had members' as 'there is a world at which the null set does have members' according to principle (6) (see section 5.2.1 above.) However this paraphrase is not true. The null set is necessarily memberless. If it exists at all, then it exists at every world and it is empty at every world. Because the identity of sets is determined by their members, if the empty set were to contain something it would not be the empty set, it would be some other set. So what is it that I am trying to express when I say the empty set could have had

members. Well it's that it belongs to the class of things (sets), which can have members. So the 'could' in this context is not an expression of metaphysical possibility. It is telling us that this set belongs to the right ontological category to have members but it doesn't have any. A better way of expressing this is that the null set is accidentally memberless whereas my pen is in principle memberless.

If two objects belong to the same ontological category then they will have the same criterion of identity. This is not the case with memberless objects. The identity of a set is determined by its membership. The null set is that set which has no members. The identities of physical objects are determined by other factors. So there is no ontological category of memberless objects that includes both of these.

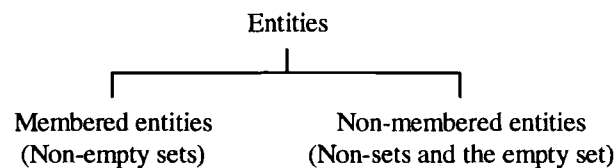
One could reply that of course there is an ontological category to which they both belong – *particulars* is one, *entities* is another. But this is to miss the point. We are interested in knowing the lowest level ontological category to which they belong. This is informative. Every object belongs to the category of entities. That does not help us make progress. Physical objects belong to some lower level category such as concrete objects or physical objects or spatio-temporal objects (depending on your favoured ontology), which does not include sets. Likewise sets belong to some lower level category (perhaps the category of sets), which physical objects do not belong to. So although at some level they do both belong to the same category there is a lower level where they definitely do not. It is the lower levels where the real work is done.

It could also be suggested that perhaps they are of the same ontological category because there is a criterion of identity for memberless objects. Namely they are those, which do not have any members. However, when it comes to cashing out

this criterion we would encounter the problems I have described above. What does it mean to be memberless? Well, it means two different things – either to be the sort of thing that could have members but happens not to, or to be the sort of thing that can't have members. But any disjunctive criterion of identity is ad hoc and arbitrary. As such it is a sign that our carving up of reality has gone awry.

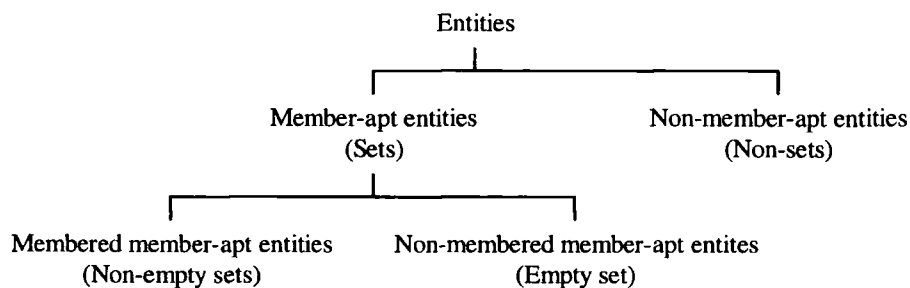
However we divide up reality, all sets should be in the same category. Rodriguez-Pereyra is breaking this rule by dividing up reality in such a way that some sets have more in common with non-sets than with other sets (as shown in diagram 1).

Diagram 1



Whereas in diagram 2, which represents the way I am suggesting we ought to divide up reality, all sets fall into the same subcategory and we only distinguish between the null set and other sets at a lower level.

Diagram 2



According to the notion of a maximal sum* the sum of all the actual concrete objects and the empty set are both maximal sum*s. But they seem to have nothing in common except this superficial property of memberlessness and the near-universal property of being the base-elements of a set-theoretical hierarchy.

There is another issue we need to address in relation to the problem of memberlessness. We have seen that the problem dogs Rodriguez-Pereyra's attempt to reconcile nihilism with Lewisian modal realism but does the problem also contaminate the subtraction argument itself? In Rodriguez-Pereyra's improved version of the argument he uses the idea of a concrete* object. An object is concrete* we will remember (see section 4.3 above) if and only if it is concrete, memberless and a maximal occupant of a spatio-temporal region. If the collection of memberless objects does not form a genuine ontological category can the argument proceed? Well it seems that it can. This is because in the improved subtraction argument* the notion of concreteness* is used to make the argument simpler. It is a shortcut that allows Rodriguez-Pereyra to avoid having to make the claim that there is a world with a finite number of concrete entities. Rodriguez-Pereyra just claims that there is a world with a finite number of concrete* objects. Sets are not concrete* objects. Using the notion of memberlessness in the improved subtraction argument* allows Rodriguez-Pereyra to follow the form of Baldwin's argument but avoid commitment to the world with a finite number of concrete objects. As it is argumentative shortcut there is no problem with the fact that the criterion of memberlessness is disjunctive. In this case the term is just a short way of writing out that disjunction and the argument could be re-written in this longer disjunctive manner if need be. So although it is problematic to use memberlessness* in his attempt to reconcile

nihilism with modal realism, it is not in his reformulation of the subtraction argument*. This is because in the first case he seems to be using memberlessness* to refer to a genuine class of entity – an ontological category – whereas in the later case he is just using memberlessness* as a shorthand for something that could unproblematically be written out in a longer form.

Rodriguez-Pereyra could object by saying that he did not intend 'memberlessness' to be a metaphysically serious term. He could suggest that it is just shorthand for a disjunction of several different properties. This might be true but if it is then I think it renders Rodriguez-Pereyra's account of worlds less plausible. A recurring criticism of possible world theories is that some philosophers claim that it is hard to see what these possible worlds have to do with modality. Even if there are these other worlds, they say, what do they have to do with explaining the truth of modal claims about this world? In the case of Lewis' account and many ersatz accounts I think this criticism is not very effective. In Lewis' account the other worlds really are things like this one so it's obvious that they are other ways this one could have been. In those ersatz accounts where worlds are states of affairs or proposition-like or novels, it is also relatively easy to see that those describe other ways this world could have been. But the more separated from that intuition our accounts of worlds become, the harder it is to see how this is the case. Rodriguez-Pereyra's account says that worlds are a collection of a maximal sum of memberless objects (with the appropriate conditions) and its set-theoretical expansion. If we then take into account that the group of memberless objects have nothing significant in common then it becomes harder and harder to see how this can explain our modal claims.

Secondly, if Rodriguez-Pereyra is willing to embrace this disjunctive nature of memberlessness and deny that it carries any metaphysical weight, then he could perhaps be accused of being ad hoc. If, in our attempts to reconcile modal realism with metaphysical nihilism, we are forced to use disjunctive characterisations of reality, then perhaps modal realism and metaphysical nihilism are not really compatible or are only compatible if we make ad hoc modifications to our definition of worlds.

5.2.4 The 'of a kind problem' and Lewis and Rodriguez-Pereyra's common ground

This brings us back to the broader point I made about the phrase 'of a kind' (see 2.2 above). The notion of 'of a kind' used by Lewis in various contexts is ill defined. The fact that we can find some superficial feature, which two objects appear to share, does not tell us anything about the metaphysics of those objects. This means the characterisation of modal realism given in (2) is not sufficient.

This lack of clear definition is accentuated when we consider that an actualist, who holds an account of possible worlds diametrically opposed to Lewis's possibilism, could actually accept Rodriguez-Pereyra's characterisation of modal realism. This is because the world does not have to be identified with the universe. An actualist, who holds that, for example, the actual world is the maximally consistent proposition that describes the universe, would also hold that the other possible worlds are maximally consistent propositions. So these other worlds are 'of a kind' with the actual world.

So what Lewis means when he says 'of a kind' is that both the actual and the merely possible worlds are spatio-temporal. This is what distinguishes them from the ersatz worlds.

It is usually considered that spatio-temporal entities form a distinct ontological category – often called concrete objects. So the precise formulation of Lewis' position that is hinted at by 2 is

2a: Both the actual world and the merely possible worlds are maximal sums of spatio-temporally related entities.

Rodriguez-Pereyra, on the other hand means that

2b: both the actual world and the merely possible worlds are collections of a maximal sum* and its set-theoretic expansion.

Now it could be argued that there is a common claim that both Lewis and Rodriguez-Pereyra hold which is

2c: Both the actual world and the merely possible worlds belong to the same ontological category.

However, this is not the case. While it is commonplace to suggest that spatio-temporally related objects form an ontological category I have shown above that collections of a sums* and their set-theoretic expansions do not. So it seems that there is no clearly defined thesis with which we can replace 2 that Rodriguez-Pereyra and Lewis could both assent to.

However, if Rodriguez-Pereyra's preference for taking collections to be proper classes rather than mere pluralities is correct, then maybe 2d is true: both the actual world and the other possible worlds are proper classes.

5.2.5 Conclusion

I suppose my point in the previous sections is that Rodriguez-Pereyra's account wants to retain the power and ontological economy of Lewis' account whilst also diverging from Lewis' account so as to gain compatibility with metaphysical nihilism. I have merely been pointing out just how divergent from Lewis' account this is. Rodriguez-Pereyra's characterisation of modal realism is so broad that even hard-line ersatzers, the opponents of Lewis' theories, could accept Rodriguez-Pereyra's characterisation of modal realism (2). Given that Lewis' account is so well-worked out and documented, it is not obvious that we can make changes this large without affecting the power and usefulness of the theory.

It is also worth noting that Rodriguez-Pereyra's ontology is really extremely large. Many philosophers have problems with accepting abstract objects into an ontology (including Lewis). Many others have problems with possibilia (except Lewis). However Rodriguez-Pereyra is committed to both. So this seems like an extremely expensive ontology.

5.3 Conclusion

Metaphysical nihilism is often taken to be a view without or with a very minimal amount of ontological commitment. I have shown that this is not the case. It is usually taken to be a common sense view, agnostic between accounts of what possible worlds are, a basic hypothesis, which we should hold on to until persuaded otherwise. What I have shown is that it is none of these. It is not agnostic between the different accounts of possible worlds. Nihilism itself is not compatible with a compositional account of worlds. The container account of

worlds is assumed in some discussions of nihilism and seems to be taken to be an agnostic, common sense view that we can hold harmlessly without impinging on our other beliefs. However, unless absolutism about space and time is correct, this view is untenable. Finally the ersatz view, although at first sight consistent with nihilism, is not compatible with any forms of the subtraction argument, the only argument for nihilism, so far advanced. Any account of worlds that sees worlds as sets is already committed to the full ontology of one of my other three accounts. One could argue that it is nonetheless worth having a larger ontology in order to make nihilism compatible with something like Lewis' account of possible worlds. However the only attempt to do this results in a position quite different from that of Lewis, in fact, a position that is compatible with many forms of ersatzism. Its far from clear that a theory so radically different from Lewis' account could do everything that is required of Lewis' account. If it is possible to give an account of a Lewisian theory of worlds that can do everything that genuine modal realism does *and* is compatible with metaphysical nihilism then a lot more work is needed to clarify exactly what this theory is and how it works.

I suppose the reason that nihilism is seen to be low on ontological commitment is because it involves arguing for the existence of a very minimal sort of existent – an empty world. This is hardly going to break the ontological bank, to carry on Lewis' economic metaphor. But the empty world is actually quite a big commitment for several reasons. Firstly as I have shown above, embracing its existence leads one to hold several other positions, which have varying degrees of ontological commitment, and rules out others.

Secondly we need to be careful with what we mean by ontological commitment. It is possible that the overall ontology required by a system invoking the empty world is smaller than that without it. But that does not mean that embracing the empty world is not a big commitment. A commitment to the non-existence of some entities is just as big as a commitment to their existence. What we should learn from parsimony principles is that we should not assume the existence *or the non-existence* of entities without arguing for them. Take for example the fact that accepting the empty world and Rodriguez-Pereyra's revised criterion for concreteness leads one to deny the existence of haecceities or essences. On a superficial reading of Ockham's razor this seems palatable – the fewer entities needed to explain the world the better. But with a deeper understanding of the point of Ockham's razor, we can see that we do not want a theory about one part of our metaphysics to accidentally rule out the existence of objects that might be necessary in another part of our ontology. The main point I am trying to make is that using naive principles of ontological economy in ontology itself can verge towards begging the question (see 2.2 above). We should adopt a principle of not accepting or denying the existence of any entities without weighing up the pros and cons of those entities in their entirety. Ruling out haecceities, which are *prima facie* irrelevant to the debate about metaphysical nihilism but central to that about actualism, on the basis only of considerations about nihilism is not going to contribute to a fully rounded ontology.

6 METAPHYSICAL NIHILISM

My aim in this chapter is to look at metaphysical nihilism itself. It is important to remember that nihilism and the subtraction argument are two separate issues. In this chapter I want to find out exactly what nihilism is and what are the issues that motivate a nihilist to hold their position.

At the end of the last chapter we saw that metaphysical nihilism and the subtraction argument, as they stand, are compatible with only a very limited form of ersatzism. However, nihilism itself seems *prima facie* to be compatible with a broader range of ersatz views. The main factor that limits the nihilist in her choice of possible world theories is not nihilism itself, or the subtraction argument *per se*. Rather it is a suppressed premise of the subtraction argument in all its published forms, namely the criterion of concreteness used by Baldwin and Rodriguez-Pereyra. This criterion rules out the existence of haecceities and essences. Because most ersatz views require the existence of some sort of essences, only the less robust theories of modality are left available to the unreconstructed metaphysical nihilist.

This leads us to ask why the nihilist has used this particular criterion of concreteness and whether we could choose another without causing other problems for the nihilist.

6.1 What is nihilism?

There really are a vast number of different distinctions that use the terms 'concrete' and 'abstract'. This means it is very hard to distinguish the philosophical issues surrounding the distinction from the terminological ones.

There is a sense in which these really are several different distinctions, which unfortunately have historically been described using the same two terms. In so far as this is the case there is not a serious philosophical issue at stake.

However, to some extent, there is a serious philosophical issue. This is because in any given case, we need to decide which version of this distinction is the relevant one. In this thesis this is a really central and serious philosophical problem. The main question I am addressing is whether or not there is a world with no concrete objects. The sense in which this question is important and interesting and the answer we give to it all depend on what we mean by concrete. This is not a merely terminological issue but a core philosophical one: we have to work out what an empty world is.

It has been an assumption of this discussion, not just in my thesis but also in all the other previous discussions,¹ that an empty world might contain abstract objects. But it could be argued that by an empty world we mean a world with no abstract or concrete objects – no objects at all. We could call this position – that there could have been no abstract or concrete objects at all – absolute nihilism, in order to distinguish it from metaphysical nihilism. Absolute nihilism is a species of metaphysical nihilism – if absolute nihilism is true (there is a world with no objects) then metaphysical nihilism is true (there is a world with no concrete objects). Answering my question (could there have been no concrete objects?) is a prerequisite for answering this other question (is there a world with no objects at all – no concrete and no abstract objects?). However, there are a few things

¹ Lowe, E. J., "Why Is There Anything at All?: II," *Aristotelian Society Supplementary Volume* (1996), Van Inwagen, P., "Why Is There Anything at All?: I," *Aristotelian Society Supplementary Volume* (1996): 96.

that we can say here and now about what an answer to that other question might be.

Lets return to some of the considerations in the last chapter: even if we do not adopt the container view we can still ask whether a world is itself concrete or abstract. In the compositional views the world is concrete. It is not surprising that those who hold these views do not really admit abstracta into their ontologies. Armstrong is, of course, a naturalist and so denies the existence of abstracta. Lewis denies there is any meaningful concrete / abstract distinction. The compositionists think that the world and its contents are concrete, in so far as the word 'concrete' is useful at all. So the world with no concrete or abstract objects is just the same as the world with no concrete objects. They do not have to distinguish between these two questions.

The ersatzers of course have to say that the merely possible worlds are all abstract things which exist in this world. If one were to be an absolute nihilist – to claim that there is a world with no abstract and no concrete objects, then I think one would have to be an ersatz. This is because if absolute nihilism is true there is a world where nothing exists, not even the world. In ersatzism, all that really matters is what exists at this world. So there could exist in this world an abstract object, according to which no abstract or concrete objects exist. This could be a world such that if that world obtained there would be no abstract or concrete objects, including that world itself. Absolute nihilism is probably not even coherent when we work it out but I think it is obvious that the only way it could be true is if ersatzism is true.

I won't delve any further into absolute nihilism for now. Suffice to say that any progress we make towards solving the question of metaphysical nihilism will

also help us on our way to solving the question of absolute nihilism. This distinction between absolute and metaphysical nihilism also reinforces the need to have a very clear definition of concreteness so that we know exactly what metaphysical nihilism is. This is the task we will turn to now.

6.2 Criteria of concreteness

What criterion of concreteness is relevant to metaphysical nihilism? In the controversial world where nothing concrete exists, what do we mean by 'concrete'? Well, the obvious place to start our search for an answer to this question is by looking at the answers that have gone before. Baldwin suggested that failure to satisfy the identity of indiscernibles was the mark of concreteness. Rodriguez-Pereyra modified this so that non-vacuous failure to satisfy the identity of indiscernibles is a necessary but not sufficient condition for concreteness. Lowe on the other hand suggests that a spatio-temporal criterion of concreteness be used.

Neither Baldwin nor Rodriguez-Pereyra give any reasons for adopting failure to satisfy the identity of indiscernibles as their basic sign of concreteness.² Rodriguez-Pereyra does find Baldwin's account unsatisfactory on this count but just modifies it rather than questioning the use of the identity of indiscernibles in the first place.

We saw (see 5.1.3.3 above) that this criterion greatly limits the range of views of worlds available to the metaphysical nihilist. So let's leave the identity of

² I have asked Tom Baldwin why he chose this criterion and he seems to have just thought it was adequate for the task in hand. Given the disagreement about what the concrete / abstract distinction is, and the fact that much of the disagreement seems to be terminological, he just chose a criterion that seemed to do the job.

indiscernibles aside for now and try to think about the other options. But what are the other options?

It would be very easy to beg the question here. One could decide that, for instance, there could have been nothing, and so look for a criterion of concreteness that is compatible with this account. In order to avoid this let's try and work out in an objective way, what an empty world would be. We need to consider what kinds of objects, if any, could exist in an empty world.

Take the empty world where no concrete objects exist. My aim is to work out if this is possible. In order to do this we must define exactly what this position consists in. We must also look at worlds in which very little exists. We are unlikely to confuse the actual world where there is an abundance of concrete objects with the empty world. However, worlds with only few objects or objects whose concreteness is debatable may be hard to distinguish from the empty world. As a guideline we will want to say that *any object which is such that if it existed in a world, that world would not be empty, is a concrete object*. However this, on its own, is uninformative. We want to know what property or properties of objects it is that means that if an object possessing them existed in a world then that world would not be empty. Let's start this investigation by looking into some of the accounts of the concrete/abstract distinction that are available and seeing how they fit with our loose characterisation of what sort of object could make a world non-empty. We'll need some criteria for choosing between these different criteria of concreteness so I suggest we look at the following questions when weighing up the pros and cons of the various criteria of concreteness:

- (i) *Would an object that is concrete according to this criterion, make a world non-empty?* If so then we have captured the intuitive notion of

concreteness used in discussions of nihilism so far. It should be noted that it may be impossible for there to be just one object existing in the world, so it may be that no one object is itself sufficient to show that a world is non-empty. What is important is that we identify the kind of object that would make a world non-empty. Satisfying this criterion would mean that if any object of a certain kind existed in a world then that world would be non-empty. Of course this criterion on its own is circular. We want to know what would make a world empty of concrete objects and we then define concrete objects as ones which make a world non-empty. However I think that this is a benign circularity. This is because although it does not give us an explanation at a lower level than what we had, it is nonetheless informative as it does focus us on the relevant issues. More importantly, its circularity is irrelevant as this is not the only question I am using, I am also using the following other questions.

- (ii) *Does this criterion allow that our paradigmatic instances of concreteness e.g. tables, atoms, planets are concrete and our paradigmatic instances of abstractness e.g. numbers, pure sets are abstract?* Failure to satisfy this criterion would indicate that it was not really dealing with the issues that are relevant to nihilism.
- (iii) *Are there other philosophical problems, which have no prima facie connection to the problems of concreteness, which are raised by this criterion?* If so then these problems may make this criterion more problematic than its competitors.
- (iv) *Does the criterion itself vary from world to world?* If so it may indicate that we are not really dividing reality into two kinds of objects in the

comprehensive and objective way that we expect to, using the abstract / concrete distinction.

- (v) *How does this criterion compare to the other criteria?* Each criterion will meet some of my above requirements to a greater or lesser extent. I will then need to compare the relative merits of the different criteria. If one can incorporate all our intuitions about concreteness but rests on problematic foundations in some other branch of philosophy, this might have to be weighed against one which is counterintuitive but involves fewer philosophical problems. Also some accounts may be stronger or weaker than or coextensive with other accounts, in which case they may collapse into each other bringing some of their benefits and problems with them.

6.2.1 *The sense-perception account*

According to the sense-perception account, an object's concreteness is determined by whether or not that object can be sensed by us.³ Those objects which we can smell or touch or see, etc. are concrete, whereas those that are invisible and inaudible and so on, are abstract. This makes sense so far as abstract objects are concerned – sets, numbers, etc., all our paradigm examples of abstract objects are impossible to sense, but it's not clear that all objects that we commonly think of as concrete are possible to sense.

The main problem with this account is the fallibility and inadequacies of those senses. For example, sub-atomic particles cannot be seen, as they are too small. Likewise they cannot be heard, tasted, etc. If this criterion of concreteness were

³ Hale, B., *Abstract Objects* (New York: Blackwell, 1988) 46-7.

correct then it would mean that concrete objects would be fundamentally constituted by abstract objects, which seems dubious. It could be argued that these types of thing could be sensed indirectly e.g. sub-atomic particles can be detected in a cloud chamber. This brings me on to my next point.

There is some philosophical dispute as to what exactly can be sensed by humans. Do we sense physical objects like chairs and tables or do we sense light-rays or some sort of sense data? Here we get into issues about direct and indirect theories of perception. If our senses directly encounter only some sort of sense data or something intermediate between us and the macro-physical objects in the world, then those macro-physical objects would not be concrete according to the sense-perception account of concreteness. On the other hand if we do sense chairs and tables directly then they are concrete.

But it's hard to see how issues about perception can have anything to say about issues concerning modality. It's also strange to think that the many worlds with no sensory beings would be divided into concrete and non-concrete objects according to some phenomenon which is merely possible relative to those worlds.

This brings us to the central problem with this account: it is anthropocentric. The distinction is based on the somewhat arbitrary human senses. But surely the senses could have been different. For example we could have had the sonar abilities that bats have as well as all the senses we actually have. In that case then the realm of concrete entities would perhaps have been larger. But if this is possible then there is some possible world where we have that extra sense and perhaps others that we cannot imagine. So in the empty world, there would be no objects that could be perceived by the senses. But would it be no objects that can be perceived by the actual human senses? Or no objects that could be perceived

by any actual senses (including those of bats)? Or no objects that could be perceived by any possible senses? Surely either the second or third of these must be the case. It would be far too arbitrary to say that the actual human senses at this stage of evolution are somehow philosophically important. Similarly, it seems arbitrary to include only those extra senses that exist in the actual world without including others that may exist in other merely possible worlds. But then we have no idea what these other senses might be. If we say that concrete objects are those objects that could be sensed by some possible or actual sense organ then we have very little idea what we actually mean by this. Add to this the gross anthropocentricity of assuming that this metaphysical issue about the possibility of nothing existing has anything to do with the senses and this account starts to seem very unsatisfactory.

The only common factor that entities that could be sensed by some possible or actual sense organ would have in common is the ability to cause perceptions in some being or other. This means that the sense-perception account would ultimately collapse into the causal account of concreteness, which I discuss in the next section.

Perhaps the idea behind this kind of account is not metaphysical. It is suggesting that our division of objects into concrete and abstract is just a way of dividing up the world that makes certain things easier without any suggestion that we are, so to speak, 'carving reality at the joints'. As such it makes sense to divide things up according to the arbitrary but important human senses. However there seems to be no reason that we should call this the abstract / concrete distinction. Yes, there is a distinction between those objects that can be sensed and those that cannot. However it is of limited metaphysical importance and certainly will not help us

to work out if there could have been an empty world or not. For these reasons I will not be using it further. As I acknowledged at the beginning, there are many distinctions that go under the name abstract / concrete and my aim is not once and for all to decide which if any of these it is correct to call by that name, but just to work out which one is relevant to this discussion. Whichever one I choose will have to have some hope of 'carving reality at the joints' rather than just appealing to something arbitrary like the human senses. Otherwise my main question will slip from being a metaphysical question to one about the philosophy of mind or perception or epistemology, dealing with our way of thinking about things rather than those things themselves.

6.2.2 *The causal account*

There are two versions of the causal account.⁴ According to the first version, an object is concrete if and only if it could be part of a causal chain i.e. if it could be affected by a cause *or* if it itself could cause changes. The second, stronger version claims that an object is abstract just if it cannot be a cause. In the first case an abstract object enjoys complete causal isolation. In the second it merely lacks causal efficacy – it can be caused but cannot be a cause.

Like the sense-perception account and Baldwin and Rodriguez-Pereyra's account in terms of failure to satisfy the identity of indiscernibles, this criterion seems to be satisfactory in putting most of the uncontroversially abstract objects in the right category. If something is abstract then it probably cannot be part of a causal chain, just as it cannot be sensed. However is this sufficient to characterise our distinction? Certainly this account seems preferable to the sense-perception

⁴ Ibid. 47-8.

account. There is a metaphysical distinction between those objects that can interact causally and those that cannot. This is because causation is a metaphysical issue in a way that the evolution of the human senses is not. So this account lacks the arbitrariness we saw in the sense-perception account.

However this account does share another problem with the sense-perception account. Just as the philosophical questions about what kinds of things it is that are involved in perception are unsolved, so too are the philosophical questions about the details of causation. We don't know what the causal relata are. Perhaps events are the only causes. But if this is the case then the causal criterion means that macro-physical objects like tables and chairs are not concrete. Similarly with other accounts of the causal relata – if anything other than our paradigmatic instances of concrete objects are the causally active entities in the world then our account of concreteness will be seriously flawed.

One could try to rescue the causal criterion from this problem. For example we could say that it is not only the direct causes and effects which are concrete but also other entities which are somehow involved in causation. For example,⁵ if events are the causal relata and so the only kind of entities that can cause or be caused, we could still claim that ordinary physical objects are concrete. The idea is that events are partially constituted by ordinary physical objects and couldn't happen without them. These objects are therefore a central ingredient in the causal process and so can be included in the realm of concreta.

Let's look at the differences between the two versions of this account. The stronger account means that supervenient minds would not be concrete.

⁵ This example was pointed out to me by Jonathan Lowe.

According to many supervenience theorists, minds can be affected causally but cannot themselves be causes. But it seems strange to suggest that an important element of ourselves is abstract. Surely I am concrete and so are all the philosophically significant elements of me like my mind. Maybe this is begging the question of whether or not being causally efficacious is equivalent with being concrete, but it is merely following out some common intuitions about concreteness. Perhaps people or people's minds are not in that inner core of paradigmatically concrete objects like tables and planets, but they are certainly not far removed and much closer to those macro-physical objects in terms of concreteness than they are to paradigmatically abstract objects like numbers. If supervenient minds are concrete, then inability to be a cause is not equivalent to abstractness.

What about the other version then – that something is abstract if and only if it cannot engage in any causal activity? There is one thing that all entities involved in causation will have in common: they will all exist in time. They will probably all exist in both space and time but it is enough to say that they will all exist in time. Whatever theory of causation we hold and whatever account of space and time we hold, we can be certain that causation only happens within a temporal framework. Similarly, it seems as though all objects that exist in time could possibly engage in causal interaction. (If we do not adopt Lowe's⁶ strategy for dealing with languages and games, and accept that languages and games are concrete, then it is quite plausible that languages and games can engage in causal interaction e.g. being spoken, being played, being learnt, etc.) This means that any

⁶ Lowe, E. J., "Objects and Criteria of Identity," in *The Companion to the Philosophy of Language*, ed. Hale, B. and Wright, C. (Oxford: Blackwell, 1997), 627-9.

account that says that concrete objects are all and only those objects that can be causally efficacious, will be saying nothing different from someone who claims that concreta are all and only those entities which exist in time. This is a version of the spatio-temporal criterion of concreteness, so let's look at it now and see if we can do away with all reference to causation in our characterisation of concreteness and just use temporality.

6.2.3 The spatio-temporal account

Like the causal criterion there are two versions of the spatio-temporal criterion. Some claim that abstract objects are just non-spatial (weak criterion) whereas others claim they must be non-temporal too (strong criterion.) According to the strong criterion, only such paradigmatically abstract objects as numbers and sets are abstract. The weaker criterion on the other hand admits other objects such as souls or non-physical minds to the realm of the abstract.

Let's look at the weaker criterion first. There appears to be a problem with this criterion because it makes Cartesian minds abstract.

For our purposes, it seems that a world with a Cartesian mind must differ from the null world. A world containing any thinking being is surely not empty. This doesn't mean that I am claiming that Cartesian minds exist, but I am trying to work out what sorts of things would be concrete if they did exist and it seems that Cartesian minds would. So the weak criterion cannot be what we are looking for.

What about the strong criterion? It allows Cartesian minds to be concrete, as they exist in time. It also allows supervenient minds to be concrete, as they also exist in time and perhaps also space. In fact it seems hard to imagine anything that

exists in space but not in time. We have seen some putative examples of entities existing in time but not in space but it is almost impossible to think of one that is the other way around. If this is the case then we could reduce the strong criterion to: an object is concrete if and only if it exists in time. If all temporal entities are also spatial then this criterion is co-extensive with our original formulation of it, which was that an object is concrete if and only if it exists in space and in time.

The only thing that could perhaps be said to exist only in space but not in time is perhaps time itself. Does space exist in time and time in space? If so they could both be accepted as concrete entities under this criterion. However this seems confused. First of all it is usual now to speak of space-time as one interconnected thing rather than two separate phenomena. Secondly, neither space nor time are objects. Objects have persistence conditions and criteria of identity and so on, whereas time, at least, can't be said to have these features.⁷ Thirdly, there doesn't really seem to be any sense in which time exists in space. Things that exist in space are spatially extended and have shapes, sizes, etc.⁸ Likewise it's hard to make sense of space existing in time. It seems better to consider time and space as being neither abstract nor concrete as they are not objects of any sort and so are neither abstract objects nor concrete objects.

One potential problem with the strong criterion is the fact that this criterion appears to allow more objects than we require into the realm of the concrete. Hale⁹ cites the English language and the game of chess as examples. According

⁷ This question is discussed in more detail and historical context in Earman, J., *World Enough and Space-Time* (London: MIT Press, 1989) 111-6.

⁸ Admittedly some fundamental particles appear not to have some of these properties but they do have other properties that only spatial objects have such as spin, flavour, etc.

⁹ Hale, *Abstract Objects* 48-50.

to this line of thought, these objects started to exist at a certain time in the history of the universe. English did not exist before anyone spoke English; chess did not exist before there were any thinking beings or chess pieces and chessboards. And so these objects are temporal if not spatial. But this means that languages and games are concrete, which seems strange. If a world contained only the English language I do not think it would be significantly different from the null world or a world, which contained, say only the Irish language. At least, not different in a way which affects my main question. So it seems that if this criterion makes languages concrete then it may not be the correct criterion for using in discussions of metaphysical nihilism.

There are two ways out of this problem – either we can accept that our intuitions may be incorrect and languages and games are concrete or we could reclassify languages and games, etc. as non-temporal entities.

What would happen if we just admitted that languages and games are concrete? They are not amongst our paradigmatic examples of abstract objects like numbers and sets. They also depend in some sense on human beings who are obviously highly contingent existents. These are reasons for us to suppose that our initial vague intuition that these should be abstract may be flawed and it might be all right to admit them into the realm of the concrete. Whilst we do want to develop an account of concreteness that doesn't violate our strongly felt intuitions about abstract and concrete objects, we must admit that some of our less central beliefs about abstractness and concreteness may be corrected by a fully thought-out theory of abstractness and concreteness. This is a good thing in a theory – our metaphysics and our philosophy in general is not a mere formalisation of all our intuitions. It does involve consulting those intuitions but

it also involves filtering and reconsidering them so that we decide which are most likely to be true, and so should be retained by our philosophy, and which are not. Once we have worked out a functioning philosophical theory, we may see why some of our previous intuitions are wrong. This is why it is all right to accept that languages may be concrete even though we initially thought that they were abstract, whereas it would not be all right to come up with a theory of concreteness according to which atoms or tables are abstract.

Alternatively, if we re-classify languages and games as non-temporal entities, then they are abstract entities, according to the strong criterion.¹⁰ This would mean that languages and games, etc. exist atemporally and it is only their instantiations, or instances of their use, that exist in time. Just as, say, redness is an atemporal, abstract thing whereas red jumpers are temporal concrete entities. As Lowe says (he is using biological species as his example rather than a language):

The solution is to distinguish between biological *species*, which are *concrete individuals* consisting at any time of the mereological sum of their currently existing members (particular tigers or particular oaks), and biological *sorts* or *kinds*, which are universals instantiated by the members of those species ... Thus we can say that the horse *species* at one time did not exist and has evolved over millennia as its individual members have gradually taken on different morphological features, but the *kind* horse which all these past and present individual horses instantiate never 'came into' existence and has not itself undergone change.¹¹

So it seems as though this is not such a serious problem for the advocate of the strong spatio-temporal criterion – there are two ways out available.

¹⁰ This is the account suggested in Lowe, "Objects and Criteria of Identity," 627-9.

¹¹ Ibid., 629.

Another question arises for this criterion about God. If a god exists, does she exist in space or time or both? If she is a causal agent, as is generally assumed then she must at least exist in time. Then she is concrete under the strong criterion. I think that this makes sense. Then if there could be a god at all, if there was a world containing nothing but a god, that world would not be empty. Perhaps this god chose not to create anything else, for example.

What about the other problems that we considered in the cases of the sense perception and causal criteria? Well, like the causal criterion the spatio-temporal criterion seems to capture most of our intuitions about the abstract / concrete distinction. Paradigmatic cases of concreteness like medium sized physical objects obviously exist in time and so are concrete whereas paradigm cases of abstracta like numbers do not exist in time and so are not concrete.¹²

The space-time criterion also lacks arbitrariness. There is a real metaphysical distinction between objects that exist in time and those that don't in a way that there isn't between objects we can sense and objects that we can't sense. So we do seem to be carving reality at the joints in dividing it into the temporal and the atemporal.

It's important, here, to distinguish two properties: (i) being in a certain temporal location, which is surely relational – determined by the object's relation to other objects or to an absolute temporal framework (this is why Baldwin can use it to

¹² I am assuming a non-constructivist account of numbers here. This is a subject of controversy but the non-constructivist account, which I am assuming, is the less controversial side of the argument. I don't have the time or space to go into this debate here. Anyone who is a constructivist about numbers might disagree with what I am saying here. But my main claim is just that this criterion agrees with the intuitions of most of us. If there are good philosophical reasons for being constructivists, that means those intuitions are wrong but doesn't mean that temporality is not the criterion of concreteness. It just means that the argument from intuitions to that conclusion must be abandoned. Given the weakness of arguments from intuitions I am not putting much weight on this point and so this is not a serious problem.

differentiate between two objects that share all their intrinsic properties). (ii) Being temporally located, which is a different property. It could be said, for example, that being temporally located is an essential property of physical objects – a table could not exist without existing in time – whereas being at a given temporal location is a contingent matter – the table could have existed at a different point in time. So while reference to temporal location would be an arbitrary way of dividing the world up, temporal locatedness is a more significant metaphysical feature.

The philosophy of space and time is, of course, far from cut and dry. Just as with the problem of the relata of causation and the questions about indirect perception, could it be the case that other philosophical problems cause trouble for the spatio-temporal criterion? It think not. In the case of causation, for example, we saw that the very objects whose concreteness we wanted to assert – medium sized physical objects – may not actually be the objects that are causally efficacious. Likewise with the sense-perception account, we saw that it might be sense data that are perceived, meaning that our paradigmatic cases of concreteness are not concrete. Although the philosophy of space and time is full of unsolved problems, none of them is as serious for the space-time criterion of concreteness as those analogous problems are for the other accounts. This is because there is little if any philosophical debate about what objects are temporal. Certainly there are issues about persistence in time – do tables and chairs continue to exist over a period of time or are they made up of temporal parts which themselves exist only instantaneously? But in either case, we would want to say that all these things are temporal and also concrete. If objects consist of temporal parts, these parts are temporal even if they do not persist over a period of time. Likewise the tables and

chairs that are the sums of these temporal parts are in some sense temporal as they are made up of temporal parts. If tables and chairs themselves persist then they are unproblematically temporal and concrete. So it seems as though the problems in the philosophy of time are less of a difficulty for the temporal criterion of concreteness than the problems in the philosophy of causation and perception are to the other two accounts we have considered.

Another problem that we saw with the causal and to a greater extent the sense-perception accounts is that the phenomena in question might themselves vary from world to world. This does not seem to be the case with the temporal criterion. If something exists in time in this world then it seems that it is not the case that it could have not existed in time. This adds to the sense that this criterion is really dividing reality along a fairly significant joint. Any temporal thing like my pen or my cat could not have been atemporal. They could have not existed at all. They could have been imagined in a world where they did not exist, but they themselves must be temporal in any world where they do exist. This seems to fit with another intuition we have about the abstract / concrete distinction, namely that if something is concrete it could not have been abstract. It may be that something is concrete in this world, e.g. me, and that my essence might have existed without me in another world as an abstract object. But my essence is not me. It is a property and I am not. If something is temporal then it is essentially temporal. Likewise, it seems plausible that if something is concrete it is essentially concrete. This gives more reason to accept that temporality is necessary and sufficient for concreteness.

Another question is whether we want a world with empty space and time to be distinct from the null world. It has been suggested to me,¹³ that it would make a difference. If we accept that a world with empty 3-dimensional space is different from a world with empty 2-dimensional space then surely the world with 3-dimensional space is different from the null world. However it is dubious as to whether any sort of empty space is possible (this is discussed in 5.1.3.2 above). It therefore seems even more questionable to suggest that there are different kinds of empty space.

Gary Rosenkrantz suggests the following counterexample to the spatio-temporal criterion of concreteness.

... there could be a *static* world containing a non-spatial thinking substance engaged in an *atemporal* contemplation of *eternal truths*. Yet it seems that a possible soul of this sort may possess [unrealised] *potentialities* to undergo intrinsic psychic changes or [unexercised] *powers* to bring about changes. Although an atemporally, non-spatial, thinking substance having such potentialities or causal powers would surely be a *concretum*, it obviously would not stand in spatial or temporal relations.¹⁴

I don't find this example very convincing. It is primarily the atemporal contemplation that worries me. I can see that there may be atemporal or eternal truths but it's not clear how there could be atemporal contemplation of those truths. Surely contemplation is a process that goes on over a period of time? So whilst Rosenkrantz's example aims to show that an entity that merits being termed 'concrete' could fail to exist in space and time, I claim that the entity he describes could not fail to exist in time and so satisfies this criterion of concreteness.

¹³ This was suggested to me by Killian O'Brien.

¹⁴ Rosenkrantz, G. Review of *The Possibility of Metaphysics* by Lowe, E. J. *Philosophy and Phenomenological Research* LXIV (2002): 728-36.

So, if we define a concrete object as one which would distinguish an otherwise empty world from the null world, then which of these accounts is most appropriate for our discussion? It seems that both the strong version of the spatio-temporal account and the causal account are contenders. The spatio-temporal criterion seems to have more going for it for three reasons. Firstly the problems in the philosophy of causation pose more complications for someone using this as their criterion than the problems of time do for a supporter of the temporal criterion. This is not to say that the philosophy of time is less problematic than the philosophy of causation but just that the problems it throws up have less effect on this issue than the analogous problems from the philosophy of causation. Secondly, if something is temporal then it is essentially temporal and if something is concrete then it is necessarily concrete. Again the case for the causal criterion seems more problematic than this. Thirdly, the causal criterion includes the temporal criterion as nothing can potentially engage in causal interaction without existing in time and vice versa. So we may as well avoid the references to causation and the philosophical problems associated with it, as the temporal account is more or less co-extensive with the causal account but less problematic.

So perhaps the spatio-temporal (or, as I pointed out above, temporal) criterion of concreteness is the one we should use. This criterion is obviously carving reality at the joints. This is reinforced by the fact that it seems to give us a condition which does not vary from world to world. It also guarantees that all our paradigmatic cases of abstract and concrete objects fall into the right categories.

6.2.4 *Identity of indiscernibles*

So the temporal criterion is better and more appropriate than the other criteria we have considered but how does it compare with Baldwin and Rodriguez-Pereyra's use of failure to satisfy the identity of indiscernibles as the mark of concreteness?

Well, this criterion of concreteness is incompatible with a robust ersatz account of worlds. In the absence of a fully worked out non-ersatz account of worlds that is compatible with nihilism, a robust ersatzism is the only fully worked out account of possible worlds the nihilist can rely on (as we saw in 5.1.3.3 above). This would mean that nihilism is false (if a robust ersatzism is true). But perhaps it is nonetheless the correct criterion to use in this case. As I said earlier, in order to avoid circularity and question begging in our decision about which criterion of concreteness is appropriate for this discussion, the decision has to be made without taking that sort of consideration into account. We must not choose (or reject) a criterion of concreteness simply because it makes nihilism true. So let's see how the criterion of failure to satisfy the identity of indiscernibles fares in comparison to that of temporality.

When Rodriguez-Pereyra and Baldwin discuss this issue they ask about unit sets, parts of spatio-temporal objects and spatio-temporal regions. Why do they discuss these particular cases? Well, it is because a crucial step in Baldwin's original subtraction argument is that there could be a finite number of concrete objects. If unit sets, parts of spatio-temporal objects or spatio-temporal regions are concrete objects then this premise may well be false. I will take a different approach. As I stated above, I think it is important to find the version of the abstract / concrete distinction that gives us the most accurate understanding of nihilism. In trying to find a version of the distinction, which fits in with the premise of his argument,

Baldwin is in a sense begging this question. I will consider issues thrown up by consideration of parts of concrete objects, unit sets, etc. only in an objective way, just as I have been considering other issues above. My hope is that by doing this I will find the version of the distinction most appropriate to nihilism and only then try to construct an argument for it.

So let's recall exactly what Baldwin and Rodriguez-Pereyra's criteria are.

Baldwin states that:

I shall take it that the primary mark of concreteness is failure to satisfy the identity of indiscernibles.¹⁵

Whereas Rodriguez-Pereyra's¹⁶ final version is that a necessary but not sufficient condition for concreteness is non-vacuous failure to satisfy the identity of indiscernibles.

So let's try and work out if either Baldwin's or Rodriguez-Pereyra's criteria can meet my requirements for relevance to the question of metaphysical nihilism.

Do they mean that paradigm cases of concreteness like tables and planets are concrete whilst paradigm cases of abstractness, like numbers, are abstract? They seem to do so. Tables and chairs will fail to satisfy the identity of indiscernibles, as each one will have different relational properties. Numbers however do satisfy the identity of indiscernibles; anything, which shares all the intrinsic properties of the number 2, must be the number 2. But we still don't know if it is the distinction, which is relevant to the characterisation of the empty world.

¹⁵ Baldwin, "There Might Be Nothing," 233.

¹⁶ Rodriguez-Pereyra, "There Might Be Nothing," 165.

Are Baldwin and Rodriguez-Pereyra using philosophical notions which are more problematic than those they are trying to explain? In 4.2.2 above I pointed out the difficulties in distinguishing intrinsic and relational properties. It is not clear where we draw the line or on what basis the line should be drawn. This means that there is some philosophical disagreement as to what is an intrinsic property of an object. This is an indication that by using intrinsicness in our characterisation of concreteness we may be adding to the philosophical problems rather than reducing them.

What about the sense that we are in some way carving reality at the joints? Have Baldwin and Rodriguez-Pereyra picked out a genuine metaphysical distinction? This criterion has advantages over the sense-perception criterion as however we cash out the identity of indiscernibles, it is not something that will vary from world to world. If we can find a version of it that works then we will know that we have found something that works in all possible worlds and so has a degree of objectivity.

Baldwin¹⁷ says that his identity of indiscernibles – based criterion is intimately linked with spatio-temporality. Does this mean that his criterion is closely related to the spatio-temporal criterion? No, I don't think that it does. He is using spatio-temporality not as a criterion of concreteness but as a criterion of identity for objects. He says that two objects, which share all their intrinsic properties, can be differentiated on the basis of their spatio-temporal location. This is very different from saying that something is concrete if and only if it is located in space and time.

¹⁷ Baldwin, "There Might Be Nothing," 233.

If Lewis is right about worlds then I think that there may be another problem for this criterion of concreteness. Space-time may not be the only way of distinguishing otherwise indiscernible concreta. Consider the question of duplicate worlds. Lewis¹⁸ says he is agnostic as to whether any worlds have duplicates, just like themselves but distinct. He does say that if there are duplicates then there are probably an infinite number of them as any finite number of duplicates would just be too arbitrary. Lewis admits that no particularly important philosophical point seems to hang on this issue and so is happy to be undecided on it.¹⁹ So why am I bringing it up? Well, Baldwin mentions spatio-temporal location as a way of distinguishing between otherwise similar concrete objects. But in the case of duplicate Lewisian worlds this is not an option. The worlds have distinct space-times of their own. This means that they are not at any spatio-temporal distance from each other. They have no location relative to each other as there is no one space-time which includes both worlds.

What does this tell us? Well, if there are duplicate concrete worlds, then they are indistinguishable – they have all the same properties – and they cannot be differentiated by giving their spatio-temporal locations. So if these duplicate worlds exist, they pose a counter example to Baldwin's criterion as it stands.

There are two ways out of this problem. First of all Baldwin could say that his criterion means that there cannot be duplicate concrete worlds. Any entities that

¹⁸ Lewis, *On the Plurality of Worlds* 87. Although Lewis has recently expressed a preference for denying the existence of duplicate worlds (Lewis, D., "Truthmaking and Difference-Making," *Nous* 35 (2001): 606.)

¹⁹ This is disputed in Divers, J., "On the Prohibitive Cost of Indiscernible Concrete Possible Worlds," *Australasian Journal of Philosophy* 72 (1994).

can have all the same intrinsic properties as each other and cannot be differentiated on the basis of spatio-temporal location must be abstract.

The other option is to adapt the criterion of concreteness so that there are other non-spatio-temporal ways of distinguishing between duplicate worlds. However it's not at all clear how we could do this. What is it that distinguishes duplicate worlds if they exist?

Given that little of philosophical importance seems to hang on the existence or non-existence of duplicate worlds, it would be acceptable for Baldwin to take the first way out and just deny their existence. However it is another effect of Baldwin and Rodriguez-Pereyra's acceptance of the identity of indiscernibles criterion without adequate reasons. Given the importance of the notion of concreteness to the question of whether or not there are any concrete objects, this just illustrates the unexpected philosophical positions that can fall out of adopting a particular criterion of concreteness. This is another reason why this extended discussion about which criterion of concreteness is relevant to the question of metaphysical nihilism is so important and must be decided on objective grounds rather than simply adapting what has gone before.

This is only an issue for a Lewisian, as the ersatzers will claim that worlds are abstracta of some sort. It should be noted that Baldwin²⁰ accepts some sort of ersatzism and so this problem will not be an issue for him. However Rodriguez-Pereyra²¹ accepts something like a Lewisian view and so may be susceptible to this question about duplicate worlds.

²⁰ Baldwin, *Contemporary Philosophy* 140-3.

²¹ Rodriguez-Pereyra, "Modal Realism and Metaphysical Nihilism".

Looking at Rodriguez-Pereyra's²² account, he introduces the non-vacuous element in order to ensure that space-time points are not concrete (see 4.3.3 above). However, this is an example of the question begging that I am anxious to avoid. He is trying to ensure that there are no concrete objects in a world with only empty absolute space-time. But this is motivated by his desire to create a successful argument for nihilism, not by an objective investigation into what criterion of concreteness is most appropriate for a discussion of nihilism.

So, all in all, how does this identity of indiscernibles account fare when compared with our previous favourite – the temporal account? I think that the temporal account still comes out the better. This is because the identity of indiscernibles account is plagued by those philosophical problems about intrinsicness. There are no corresponding problems for the supporter of the temporal account. If we were to drop the clause about intrinsic properties, then the criterion would be that: an object is concrete if and only if it could share all its properties with another object. 'All its properties' would include its intrinsic and relational properties, although we would not distinguish them by those names. This would include its spatio-temporal properties. But surely nothing can share all its properties – its spatio-temporal or relational properties and its intrinsic properties with anything else. We can imagine, I suppose, a statue that was created from of a lump of bronze at the exact same time as that lump of bronze came into existence. Imagine then that both the statue and the lump of bronze were then destroyed at the same time as well. These two objects would share all their spatio-temporal properties. However they still would not share their intrinsic properties or even all their relational properties. For example, the statue might have the property of being aesthetically

²² Rodriguez-Pereyra, "There Might Be Nothing," 165.

pleasing while the lump of bronze might not. Or the statue might have the property of being the finest work by a particular artist while the lump of bronze would not.

So it seems as though the best way out is use the temporal criterion. This places our paradigm examples of concreteness and abstractness in the appropriate categories. It avoids added philosophical difficulties from the philosophy of time. This is where it has the advantage on the causal and the identity of indiscernibles accounts. The criterion itself does not vary from world to world – what it is for something to exist in time is the same in all possible worlds. And a world where there are objects, which exist in time, does seem to be significantly different from the empty world. The temporal criterion also gives us a realm of concreta which is more or less co-extensive with that given by the causal criterion. So those who favour the causal account can retain its benefits whilst losing its problems by adopting the temporal criterion.

6.2.5 Other accounts of concreteness

There are many different accounts of the abstract / concrete distinction and I won't be able to discuss them all. I hope I have at least mentioned the most discussed and most plausible ones. There are a few others, however, which I should mention – those of Dummett, Hale and Teichman.

The problems with Dummett's account are discussed extensively by Hale²³ and Teichman.²⁴ Dummett's account doesn't draw a sharp distinction between

²³ Hale, *Abstract Objects*.

²⁴ Teichman, R., *Abstract Entities* (New York: St. Martin's Press, 1992) 59ff.

abstract and concrete and I am sure that the account needed for discussing nihilism must make a decisive distinction.

Hale's²⁵ own account has received serious criticisms from Lowe²⁶ who claims that Hale's version of the distinction falsely classifies some typically abstract objects as concrete.

A third account of the distinction is given by Teichman.²⁷ Teichman's account (as well as Hale's and Dummett's) is logico-linguistic in its basis. It starts from an analysis of how we use certain terms like 'abstract'. Through this analysis of the language or logic of certain terms, an account of the difference between abstract and concrete is derived. These accounts discuss 'abstract terms' rather than 'abstract entities'. To whatever extent they do discuss abstract entities, it is only in so far as light is shed on their nature by the discussion of abstract terms.

It seems to me that this is not the best way of going about metaphysical inquiry. If we want to know the nature of reality itself, it seems that looking directly at reality rather than looking at our representations of it and rules for discussing it, would be the most successful route. Arguments against this way of doing metaphysics in general are given by Lowe.²⁸

In particular we are trying to work out what is the criterion for concreteness which is relevant to the discussion of metaphysical nihilism: if there could have been no concrete entities (or if there necessarily are concrete entities), what are

²⁵ Hale, *Abstract Objects*.

²⁶ Lowe, *The Possibility of Metaphysics* 51-3.

²⁷ Teichman, *Abstract Entities*.

²⁸ Lowe, *The Possibility of Metaphysics* 6-8.

concrete entities? These language-based approaches will not meet my criterion (iii) for judging accounts of the abstract / concrete distinction. This is because, as well as all the metaphysical issues surrounding the nature of abstractness, these criteria will bring in other philosophical issues which have no obvious connection to the philosophy of modality, particularly concerns about the nature of language and meaning.

All in all the temporal account of concreteness seems preferable to these other accounts, at least for discussions of metaphysical nihilism. It is cutting to the point by taking into account only metaphysical issues. The temporal criterion is primarily an account of what it is for something to be concrete or abstract and only secondarily an account of the nature of abstract and concrete terms. With these other accounts, the priority is the other way around.

6.2.6 A new criterion of concreteness and possible world theories

Well, now we have decided in an objective way which criterion of concreteness is suitable to this discussion, let's see whether it solves the problem I raised in 5.1.3.3 above for the metaphysical nihilist. My argument was that the subtraction argument with its failure to satisfy the identity of indiscernibles criterion of concreteness was not compatible with any fully worked out, robust account of worlds. How does the new criterion fare on this score? If it fails then nihilism itself must fail (unless some other accounts of possible worlds, like that suggested by Rodriguez-Pereyra, can be fully cashed out and found to be compatible with nihilism and powerful enough to do the work we require of an account of possible worlds). If it succeeds then that is an indication that nihilism at least appears to be compatible with a strong account of modality. The challenge will then be to find a

new argument or a new version of the old argument that would lead us to nihilism.

Well, the answer is that nihilism does now appear to be compatible with a robust account of worlds. If concrete objects are objects that exist in time then there is no problem with those objects having haecceities or essences. (At least there is no obvious contradiction as there is in the case of Baldwin and Rodriguez-Pereyra's criterion. There are of course philosophers who disagree with the existence of haecceities for other reasons but my task at present is just to work out if there is a strong and coherent position available to the nihilist.)

We have established that metaphysical nihilism is compatible with at least one plausible account of worlds – the ersatz account. But does ersatzism entail nihilism? If the ersatz account is true does metaphysical nihilism have to be true? It seems not. Lowe²⁹ holds an account of possible worlds that conforms to the outline I have given of the ersatz account. Yet he denies that metaphysical nihilism is correct.³⁰ He claims that possible worlds are maximally consistent situations. He also claims that there is no maximally consistent situation, which involves the existence of no concrete objects. There are of course consistent situations that don't require the existence of concrete objects. But they are not maximally consistent.

This is because he claims that (i) abstract objects are necessary, (ii) abstract objects depend for their existence on concrete objects and hence (iii) there is no possible world without concrete objects. If abstract objects are necessary there is

²⁹ Lowe, E. J., *A Survey of Metaphysics* (Oxford: Oxford University Press, 2002) 115-33.

³⁰ Lowe, "Why Is There Anything at All?," Lowe, *The Possibility of Metaphysics* 248-59.

no maximally consistent situation according to which they do not exist. If their existence in turn requires the existence of concrete objects then there is no maximally consistent situation according to which no concrete objects exist. Hence there is no possible world according to which there are no concrete objects. (This argument is discussed in more detail in 7.4.1 below.)

So although the ersatz account of worlds is compatible with metaphysical nihilism, the ersatz account does not entail metaphysical nihilism; it is also compatible with the denial of metaphysical nihilism.

That being the case, we can now consider whether we can reconstruct the subtraction argument or some other argument for nihilism using our new criterion of concreteness (this is the aim of chapter 7 below). However, that will require moving our attention from nihilism itself to the subtraction argument. Before we finish our exploration of nihilism, and as a preliminary to actually looking at the subtraction argument, it is important to look at the motivation for nihilism – why would anyone be tempted to be a metaphysical nihilist in the first place?

6.3 The motivation for nihilism

So now we have worked out what the metaphysical nihilist's claim is: there is a world with no concrete objects, where by concrete we mean existing in time. Before trying to reconstruct the subtraction argument in a formal way so that its conclusion is this claim, let's look at the sort of reasons one might have for believing this claim. What would lead one to believe in metaphysical nihilism? What intuitions or other beliefs would lead us to postulate that it is true and so needs an argument in its defence?

The nihilist could say something like this: 'Of course there could have been nothing – the big bang could have been bigger or smaller than it actually was. By this we mean that it could have involved more or less energy than it actually did. And from here it is a small step to claim that it could have not happened at all.' Now if the big bang hadn't happened at all we wouldn't be here to talk about it – it is a necessary condition for wondering whether or not the big bang was necessary that the big bang happened. It is not a necessary condition of such wondering that the big bang was necessary. Likewise if the big bang had been slightly larger or smaller than it actually was we wouldn't be here to wonder about it.³¹

Now it's not clear that this argument works. Firstly it could be said that although we have reason to believe that the big bang could have been bigger or smaller, to assume that it could have not happened at all, seems to beg the question of metaphysical nihilism.

On the other hand our aim here is merely to give intuitive support for nihilism – to show us that our intuitions support the sort of claim that nihilism makes. In this sense, question begging is irrelevant here. We are not trying to argue for nihilism in a formal way, just trying to see if we pre-philosophically think it might be true and hence something worth developing a proper argument for.

Secondly it's not obvious that these intuitions do lead to nihilism. If the big bang hadn't happened then does that mean there would have been nothing? This seems like a question that physicists rather than metaphysicians should answer at least in

³¹ At least that is what the cosmologists who discuss the anthropic principle claim (see Barrow, J. D. and F. J. Tipler, *The Anthropic Cosmological Principle* (Oxford: Clarendon Press, 1986), Corey, M. A., *God and the New Design: The Anthropic Design Argument* (Lanham, Maryland: Rowman & Littlefield, 1993).)

part. It depends on issues such as whether space, time and energy 'start' at the big bang. These issues are too complicated and tangential to look at here but we need to bear in mind that merely stipulating that the big bang could have not occurred does not obviously entail that metaphysical nihilism is a possibility.

If we did accept this argument from the contingency of the big bang to metaphysical nihilism, then would we have to claim that arguments from the nature of the plurality of worlds to the non-existence of the empty world work the wrong way around? This argument is that it's, in a way, obvious that there could have been nothing and we need a theory of modality that takes this into account. Ersatzism, combined with an appropriate account of concreteness should be able to do this. So this question about whether or not there could have been nothing should be prior to our account of what a possible world is. But my thesis is going in the other direction – it is looking at possible worlds first and then secondly at whether or not there are any empty ones. Why is this? Well, the rationale was to first of all work out what is it for something to be possible (the different accounts of possible worlds seek to answer this question) and then whether or not certain given situations (metaphysical nihilism, a necessary existent, etc.) are possible.

How can I reconcile (i) the claim that our investigation into the nature of possibility and necessity (using the possible world frameworks) is prior to the question of what really is possible or necessary and (ii) the idea that if we have a good argument to suggest that there could have been nothing then our theory of possible worlds has to take this into account? Well, perhaps we need to abandon a very strict foundationalism and adopt a reflective equilibrium approach. On this account we could say that all things being equal we need to work out what it is

for something to be necessary or possible and then consider the question of what really is possible and whether anything really is necessary. If the arguments we come up with here have repercussions for our theories of possible worlds then we need to go back to these. This may lead to revisions and perhaps returning to the other question again and so on. If we were to try to do philosophy in any other way it would be in vain as there is always a degree of uncertainty in these issues.

This means that we may have a new argument for ersatzism. If we can reconstruct the subtraction argument, or indeed any other sound argument for metaphysical nihilism, then that would be a reason for accepting what I have called an 'ersatz' view of worlds. The argument would run: (i) metaphysical nihilism is correct: there could have been nothing (ii) the only fully worked out account of worlds that is compatible with metaphysical nihilism is an ersatz account, therefore (iii) an ersatz account of worlds must be right. So if we do find a sound argument for nihilism, an added benefit of it will be that we have clarified some of the questions surrounding the nature of possible worlds. So solving one of the problems about the nature of modality (is it necessary that something exist?) will enlighten us on the other key question (what is it for something to be necessary / possible?) We have already seen this working in reverse – what theory of worlds you hold has an effect on whether or not you can legitimately be a nihilist. Now we are seeing the converse of this – whether or not you are a nihilist can affect the theory of worlds that you ought to hold.

7 CAN WE SAVE THE SUBTRACTION ARGUMENT?

My aim in this chapter is to try to construct the strongest possible version of the subtraction argument for metaphysical nihilism. This means looking back at the problems I have found for the nihilist in the last few chapters and adjusting the arguments for nihilism so that these criticisms are, as far as possible, avoided. As well as this I will be considering the arguments of those philosophers who disagree with metaphysical nihilism and seeing how this new subtraction argument fares against their criticisms.

Baldwin¹ points out that Lewis, Armstrong, Van Inwagen² and Lowe all give arguments against the possibility of there being nothing. Lewis'³ account of worlds sees them as mereological sums. As there is no null sum there is no empty world. Armstrong⁴ sees worlds as maximal states of affairs and claims that the state of affairs of there being nothing is not a state of affairs at all. Van Inwagen⁵ claims that although the existence of a possible world with no concrete objects may be technically possible it is extraordinarily improbable. And Lowe⁶ claims that abstracta exist in every world but depend ontologically on concrete objects so each world must contain concrete objects.

¹ Baldwin, "There Might Be Nothing," 231.

² Van Inwagen's claim is slightly different from the claims of the other philosophers listed as he claims that metaphysical nihilism is strictly possible but highly improbable.

³ Lewis, *On the Plurality of Worlds* 73ff.

⁴ Armstrong, *A Combinatorial Theory of Possibility* 24-5.

⁵ Van Inwagen, "Why Is There Anything at All?."

⁶ Lowe, "Why Is There Anything at All?," Lowe, *The Possibility of Metaphysics* 252ff.

7.1 More subtraction arguments

Taking the intuitive considerations raised in the end of the last chapter into account, bearing in mind the new criterion of concreteness, and given that the only fully worked out account of possible worlds that works with nihilism is ersatzism, can we reconstruct a functioning version of the subtraction argument? Well, at the end of chapter 4 above we were left with two versions of the subtraction argument. The original version that Baldwin offered and Rodriguez-Pereyra's modified version. Lowe⁷ claims that if we adopt the spatio-temporal criterion of concreteness then we do not need to make Rodriguez-Pereyra's modifications to Baldwin's original argument. (See chapter 4 above for a complete account of these arguments.) The point is that Rodriguez-Pereyra's modifications are designed to avoid the concreteness of unit sets, spatio-temporal points and regions, and parts of concrete objects. If these are concrete then they violate the first premise of Baldwin's original argument as it would not be possible for there to be a finite domain of concrete objects. Rodriguez-Pereyra modifies the argument in various ways to avoid this consequence. But these modifications are to some extent ad hoc as they are based on Rodriguez-Pereyra's desire to save nihilism (see 6.2 above).

It should be pointed out that although Lowe⁸ ultimately accepts the same criterion of concreteness as I have done, he gives no arguments for why he considers that the spatio-temporal criterion is the most appropriate to the question of nihilism. So his position is not well supported in this respect.

⁷ Lowe, "Metaphysical Nihilism and the Subtraction Argument."

⁸ Lowe, "Why Is There Anything at All?," 111-2, Lowe, "Metaphysical Nihilism and the Subtraction Argument."

Let's reconsider Baldwin's original argument (and where relevant, Rodriguez-Pereyra's modifications) using this new criterion of concreteness and see if the premises are plausible. Baldwin's argument is:

- (A1) There might be a world with a finite domain of 'concrete' objects.
- (A2) These concrete objects are, each of them, things that might not exist.
- (A3) The non-existence of any one of these things does not necessitate the existence of any other such thing.⁹

7.2 Premise (A1)

(A1) There might be a world with a finite domain of 'concrete' objects.

(A1) There is a possible world w_1 with a finite domain of concrete* objects, x_1, \dots, x_n .*

Premise (A1) is the premise that Rodriguez-Pereyra directed most of his attention to. According to Rodriguez-Pereyra, Baldwin's (A1) is false and has to be replaced with (A1*). The arguments about this point are discussed in section 4.3 above and I won't repeat them here. The relevant question for my purposes is to work out whether (A1) or something similar is true when combined with the new criterion of concreteness that I have been using and an ersatz account of worlds. Lowe,¹⁰ of course, thinks that it is true. This is because he believes that concrete objects can be mereologically simple. This means that there could be a finite number of parts of concrete objects and so a finite number of concrete objects. Rodriguez-Pereyra, on the other hand, claims that spatio-temporal objects can be infinitely divided into parts. This means that in any world where there is at least

⁹ Baldwin, "There Might Be Nothing," 232.

¹⁰ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 65.

one spatiotemporally extended object there must be an infinite number of concrete objects.

The defender of metaphysical nihilism has two options. Either accept Lowe's account of the parts of concrete objects and so retain Baldwin's (A1) or accept Rodriguez-Pereyra's account of the parts of concrete objects and so re-write the subtraction argument so that it does not turn on the existence of a finite number of concrete objects. Working out the nature of mereological atoms seems like a big task that is not directly relevant to my project. What I propose to do rather than invoking one side of this argument or the other is to consider what would follow if either of them were correct. So I will follow out the consequences of both of these positions. (Hopefully this will actually make my argument stronger as I will not be relying on any 'hostages to fortune' relating to this question.)

First of all let's consider the possibility that (in at least one possible world) concrete objects are not infinitely divisible (Lowe's position). What does this mean for the truth of (A1) with my criticisms taken into account? If Lowe is right and there are only a finite number of parts of any given concrete object then it looks like (A1) is true – there could be a finite number of concrete objects. What about the controversial entities that Rodriguez-Pereyra discussed in his criticisms of (A1)? Do they still cause a problem for (A1) when combined with the temporal criterion of concreteness? Well, spatio-temporal points do not exist in time so they are not concrete by this criterion. Similarly unit sets may contain objects that exist in time but that does not seem to entail that the sets themselves exist in time. Spatio-temporal regions can be understood in two ways. Rodriguez-Pereyra says that they are sets of space-time points. As such they would not themselves exist in time. I suggested that they were composed of

space-time points rather than being sets of them. If, however, as I have suggested, space-time points are not concrete on this criterion, it follows that sums of space-time points are also not concrete.

So, if Lowe is right and concrete objects are not infinitely divisible, then (A1) is true when combined with my new criterion of concreteness.

If Lowe is not right about the number of parts of concrete objects, then we will have to adopt a strategy similar to that of Rodriguez-Pereyra. Let's see if Rodriguez-Pereyra's revised subtraction argument* works with our new criterion of concreteness. The argument is as follows:

(A1*) There is a possible world w_1 with a finite domain of concrete* objects, x_1, \dots, x_n .

(A2*) For each of the concrete* objects x_i in w_1 , there is a possible world w^* where x_i does not exist.

(A3*) The non-existence of any of the x_i that exist in w_1 does not necessitate the existence of any other concrete* object, whether or not these exist in w_1 . That is: for all worlds w and for all the concrete* x_i in w_1 , if x_i exists in w then if there is a world w^* where x_i does not exist, then there is a world w^{**} where the only existing concrete* are those of w except x_i (i.e. w^{**} is such that for every concrete* object y , y exists in w^{**} if and only if $y \neq x_i$ and y exists in w).¹¹

(A4*)¹² If there is a world with no concrete* objects then that world has no concrete objects.

The first thing to do is to work out what concrete* means in this new context. Rodriguez-Pereyra¹³ defines a concrete* object as one that is concrete, memberless and a maximal occupant of a connected region (see 4.3 above). The notion of a maximal occupant of a connected region is fairly straightforward and

¹¹ Rodriguez-Pereyra, "Metaphysical Nihilism Defended," 172.

¹² My numbering for Rodriguez-Pereyra's extra claim.

¹³ Rodriguez-Pereyra, "There Might Be Nothing," 163.

seems to work just as well with my temporal criterion of concreteness as it works with Rodriguez-Pereyra's account.

The concreteness that Rodriguez-Pereyra refers to can just be reinterpreted in the way I suggested as temporality. The only issue then is memberlessness. In section 5.2.3 above I raised some problems for Rodriguez-Pereyra's use of memberlessness. However I pointed out there that whilst these issues are problematic for Rodriguez-Pereyra's attempt to reconcile modal realism with metaphysical nihilism they are not a problem for his revised subtraction argument*. This is because in the former case he is trying to use memberlessness to refer to a metaphysically significant category of being. Memberlessness however is merely a disjunctive property that doesn't carve reality at the joints. In the latter case, however, he is using it in such a way that its disjunctive nature is not problematic. This is because it is just a short cut in an argument and the argument could be written out longhand making the disjunctive nature of memberlessness explicit and it would be just as good an argument.

So it seems that we can retain Rodriguez-Pereyra's definition of concreteness* by replacing his understanding of concreteness with mine. In fact, it is really just the fact that concrete* objects are maximal occupants of space-time regions that is relevant to this discussion. The memberlessness clause of Rodriguez-Pereyra's definition of concreteness* could be left out for our purposes. This is because it is designed to avoid making unit sets concrete, but on my criterion of concreteness unit sets are not concrete anyway as they do not exist in space and time.

So now we know what concreteness* means with my new criterion of concreteness, the next question is whether (A1*) is true when combined with this

new definition of concreteness*. Could there be a world with a finite number of concrete* objects with this revised notion of concreteness? It seems that there could. We have already seen that with this revised notion of concreteness the only kind of entity that threatens to make (A1) false is the parts of concrete objects. The clause in the definition of concreteness* about maximal occupancy of a connected region means that even if parts of concrete objects are concrete they are not concrete*.

So, given our new criterion of concreteness, either (A1) or (A1*) is true. If spatio-temporally extended concrete objects are infinitely divisible, as Rodriguez-Pereyra believes, then (A1*) is true. If concrete objects are not infinitely divisible, as Lowe believes, then (A1) is true. The first premise of the subtraction argument seems to be on a fairly strong footing.

7.3 Premise (A2)

(A2) These concrete objects are, each of them, things which might not exist.

(A2) For each of the concrete* objects x_i in w_1 , there is a possible world w^* where x_i does not exist.¹⁴*

Premise (A2) seems to be relatively uncontroversial. Surely any physical concrete object is contingent – it could have not existed and so there is some possible world at which it does not exist. But of course the ontological argument attempts to establish that there is a necessary concrete being. So we need to consider this

¹⁴ I am including A2* to retain my agnosticism about the infinite divisibility of concrete objects. Everything I say below is equally true of A2 and A2* but I will usually just refer to A2 for simplicity.

claim and see how (A2) and (A2*) combined with our new criterion of concreteness and ersatzism about possible worlds stand up to it.

Baldwin defends this premise with his argument against a necessary concrete being (B1)-(B3). Here is Baldwin's original version of that argument.

(B1) It is a mark of concrete objects that they do not satisfy the Identity of Indiscernibles. So the identity of a concrete object is not determined by the intrinsic properties, which determine what kind of thing it is.

(B2) In the case of any being whose existence is necessary, the fact that its existence is necessary is determined by the kind of thing it is, and thus by its intrinsic properties.

(B3) For any being whose existence is necessary, the intrinsic properties, which determine its existence, also determine its identity.¹⁵

Baldwin is trying to show that being concrete is incompatible with being necessary. The identity of a concrete object is not determined by its intrinsic properties whereas the identity of a necessary object is determined by its intrinsic properties. Since no object can both have its identity determined by its intrinsic properties and not have its identity determined by its intrinsic properties, nothing can be both concrete and necessary.

Let's see if we can re-write this argument using the spatio-temporal criterion of identity and assess the plausibility of the new premises.

(C1) It is a mark of concrete objects that they exist in time. So the identity of a concrete object is not determined by the intrinsic properties, which determine what kind of thing it is.

(C2) In the case of any being whose existence is necessary, the fact that its existence is necessary is determined by the kind of thing it is, and thus by its intrinsic properties.

¹⁵ Baldwin, "There Might Be Nothing," 234.

(C3) For any being whose existence is necessary the intrinsic properties, which determine its existence, also determine its identity.

Its immediately obvious that Baldwin's (B1) is far more plausible than (C1). This is because Baldwin's criterion of concreteness ties in with the criteria of identity for concrete objects. If two concrete objects can share all the same intrinsic properties and nonetheless be two separate objects, then it must be something other than their intrinsic properties that determines their identity.

This shows that Baldwin's use of failure to satisfy the identity of indiscernibles as his criterion of concreteness does have repercussions for the plausibility of nihilism. Baldwin does not give an argument for this criterion of concreteness and yet here we have an example of it exerting an influence on his argument. This emphasises my point that in a discussion of nihilism it is crucial to give a full and well backed up account of concreteness (as I hope I have done in chapter 6 above).

(B1) works because, according to Baldwin's criteria of concreteness, two concrete objects could share all their intrinsic properties and yet be two different objects. In (C1), we have, at best, shown that two concrete objects (indeed all concrete objects) share one property – being temporally located. So there is no reason for this to cause a conflict with (C2). (C2) says that necessary objects have their identity determined by *the kind of things they are*.

Of course this is another example of the loose discussions of kinds of objects that I discuss in 2.2 above. It is assumed that when we talk about kinds of objects we are referring to some sort of well thought out category theory within which the use of the phrase 'of a kind' is well defined. However, here as in the case

discussed in 2.2 this is not true. The phrase 'the kind of thing it is' is being used ambiguously. Does it mean there are two kinds, abstract and concrete? Or are they just two of a larger hierarchy of kinds including spatially located objects, universals, etc? Questions like 'what kind of thing is this object?' are not simply answered by 'concrete' or 'abstract'. For example, a Cartesian mind might be concrete and not spatially located whereas a table is concrete and spatially located. A person might be concrete and a thinking autonomous being whereas a planet is concrete and not a thinking autonomous being. These other properties also contribute to what kind of thing an object is. So there is no obvious conflict between an object being concrete (existing in time) and its being necessary, as the kind of object that is a necessary being is much more complex than simply being concrete or abstract. So its identity could be determined by the kind of thing it is but not determined by the fact that it exists in time or is concrete.

Whatever are the answers to these questions one thing is clear. Baldwin's (B1) is relatively uncontroversial compared to (C1). However, we have seen that (C1) uses the criterion of concreteness which is relevant to the discussion in hand whereas (B1) does not. The question now is whether or not premise (A2) can be saved.

As we have not been able to produce a version of Baldwin's (B1)-(B3) that is at all convincing, perhaps we can try to write a new argument based on the spirit rather than the letter of Baldwin's ideas. The basic claim that Baldwin is trying to put across is that concreteness and necessary existence are incompatible. Any object that has one cannot have the other. Can we express this thought using our new understanding of concreteness?

Well, we would have to show that existing in time is incompatible with existing necessarily. Why should this be the case? Well, if something exists necessarily and it exists in time then it must either exist for some portion of time or else for all of time. If it existed only for some portion of time it seems likely that it would exist at the beginning of time (or the beginning of the universe, if that is not the same thing). My reason for saying this is that if something exists necessarily it is hard to imagine it popping into existence at some 'middle' point in the time line. If something exists necessarily then it would probably have some sort of non-contingent cause. Either it would have the same cause in every world (in which case the cause would also be a necessary being and it would have a cause, etc.) or it would have a different cause in every world. If it had a different cause in every world then it's hard to see why there wouldn't be a world where it doesn't have a cause at all and so it's hard to see why there isn't a world where it doesn't exist. So if a necessary object exists in time then it seems as though it must have existed at the beginning of time.

The next question is whether it continues to exist or ceases existing. If something exists necessarily it seems as though there must be something that implies that it must exist. So it seems strange for it to stop existing. So it seems that if something exists necessarily and exists in time, it probably exists throughout all of time.

But this hasn't given us any reason to believe that existing in time and being concrete are incompatible properties. We could perhaps argue that anything that exists throughout all time is not temporal i.e. that nothing could exist throughout all time, but I can't see any reasons for believing this.

So it seems that we haven't succeeded in making a case for the incompatibility of concreteness and necessary existence, given my new criterion of concreteness. So

at the moment (A2) is unsupported. Perhaps it would be a good time to look at the arguments offered by others against (A2) i.e. the arguments for the existence of a necessary being. The modal ontological arguments argue for the compatibility of necessary existence and concreteness.

7.3.1 The modal ontological arguments

We are all familiar with the traditional ontological arguments, which seek to derive an absurdity from the idea of God's not existing. Why would these arguments be of interest in a discussion of metaphysical nihilism? Well, the ontological argument, as well as arguing for the existence of a God, also provides an argument against nihilism. This is because the God of the ontological argument is a necessary being. A necessary being exists in every possible world, so if there was one, then nihilism would be false. There would be no world with no objects, as there would be no world without this one particular object. If the modal ontological arguments lead us to deny the conclusion of the subtraction argument and the subtraction argument is valid, then the supporter of the modal ontological arguments must also deny at least one of the premises of the subtraction argument. The ontological arguments offer a denial of premise (A2) of the subtraction argument. This is because they argue that not everything concrete is contingent – there is at least one necessary being.

In the traditional forms of this argument, this necessary being was benevolent, omniscient, omnipotent, etc. However, all that is required for our purposes in discussing nihilism is that it is a necessary being. Hence any problems for the ontological argument, which stem from these other divine characteristics, like the problem of evil, are of no concern to the proponent of the modal ontological

arguments. Any other attributes of that being are irrelevant for our purposes but may be a concern for philosophers of religion.

The traditional ontological argument is plagued by the criticism that it illegitimately treats existence as a predicate.¹⁶ Van Inwagen¹⁷ claims that we can construct an argument similar in structure to the ontological argument that does not treat existence as a predicate. This argument, he claims, is also flawed but it is worth looking at as it shows us that treating existence as a predicate is not the real problem in the traditional ontological argument.

Van Inwagen admits that existence is not a predicate but he does claim that necessary existence is a predicate. This is not to say that it is instantiated or even that it could be instantiated, but just that it can legitimately be considered as an attribute, which some objects may¹⁸ possess.

Van Inwagen's¹⁹ argument runs as follows:

(V1) A perfect being has all perfections.

(V2) Necessary existence is a perfection.

(V3) Therefore a perfect being has necessary existence.

(V4) Whatever has necessary existence exists.

(V5) Therefore, a perfect being exists.

¹⁶ Kant, I., *Critique of Pure Reason*, trans. Kemp Smith, N. (London: Macmillan and Co., 1950) B626.

¹⁷ Van Inwagen, P., *Metaphysics* (Boulder, Colorado: Westview Press, 1993), Van Inwagen, "Why Is There Anything at All?"

¹⁸ By using the term 'may' here I don't want to invoke any alethic properties. What I mean is that 'if we were to assert that something exists necessarily, then we would be making a predication.' Of course this might be a predication which is always false.

¹⁹ Van Inwagen, *Metaphysics* 79ff.

The problem with this argument can be seen when we consider Van Inwagen's parallel argument for the existence of a negmount. A negmount is a golden mountain.

(V6) A negmount has all negmontanic properties.

(V7) Necessary existence is a negmontanic property.

(V8) Therefore a negmount has necessary existence.

(V9) Whatever has necessary existence exists.

(V10) Therefore a negmount exists.

But of course there are no negmounts. So where did the argument go wrong? Van Inwagen shows us that we can divide this argument into two and then we will see the problems. We now have two arguments. One of which starts with the premise that 'anything which is a negmount has all negmontanic properties' and concludes that anything, which is a negmount, exists. This argument is trivial and does not claim the existence of anything. The second argument starts with the premise that there is a negmount that has all negmontanic properties and concludes that a negmount exists. This version is also trivial and moves from one existence claim to another about the same object. So the first premise of the original argument – that a negmount has all negmontanic properties – can be interpreted in two different ways. The first interpretation makes no existence claims. However it does not lead to an existence claim either. The second interpretation does yield an existence claim but it also assumes an existence claim. So neither version can argue non-circularly for the existence of a negmount. Similarly with the modal ontological argument, we cannot produce one successful argument that starts off without an existence assumption and concludes with an existence claim.

Van Inwagen attempts to get over this problem by constructing the minimum modal ontological argument. This runs as follows:

Consider the two properties, necessity (that is, necessary existence or existence in all possible worlds) and entity or concreteness (the property of being a being or concrete object). These two properties are compatible – it is not absolutely or metaphysically or intrinsically impossible for something to have both of them. Therefore, there is some thing that has both of them; that is there is a necessary being.²⁰

The reasoning is that if a necessary being could exist then it exists in some possible world. But as it is necessary, if it exists in one world, it exists in all worlds – that is what we mean by necessary existence. If it exists in all worlds, then it exists in the actual world. So it exists at this world.

Williams²¹ claims that metaphysics can be divided into two distinct tasks – analytic ontology and speculative ontology. Analytic ontology is the investigation into what kinds of things there could be. It aims to delineate the categories of metaphysical entities.²² It does not, however, discuss the actual existence of these entities or whether or not these categories are empty. This is the aim of speculative ontology: to determine what objects and what kinds of objects actually exist. I mention this distinction here because the minimum modal ontological argument presents a unique case where the two parts of this

²⁰ Van Inwagen, "Why Is There Anything at All?," 97.

²¹ Williams, D. C., *The Principles of Empirical Realism* (Springfield, Ill.: Charles C. Thomas, 1966). Quoted in Hoffman, J. and G. Rosenkrantz, *Substance among Other Categories* (New York: Cambridge University Press, 1994) 7.

²² It is tempting to align this distinction with the continental / analytic distinction. It is sometimes said that continental philosophy is more 'speculative' than analytic. But I suggest this is a different sense of 'speculative'. To highlight the difference between the analytic/continental distinction and the analytic/speculative distinction we may want to look at them in the following way. The analytic/continental distinction, in so far as it is a well-defined distinction, is a methodological one. It is about how we do philosophy in general. The analytic/speculative one is a distinctly metaphysical distinction and is characterised by content rather than method. Either a continental or analytic philosopher can make use of the analytic / speculative distinction and can engage in either analytic or speculative metaphysics.

distinction collapse into one. There is one ontological category – necessary existents – where the answer to the analytical question determines wholly the answer to the speculative question. This is because the category of necessary existents, if it is a legitimate category of entities at all, must contain at least one actually existing object. If something could possess necessary existence then something, in this the actual world, does possess necessary existence.

Van Inwagen²³ has argued that this argument is valid and that any other version of the ontological argument will have less plausible premises. So if any version of the ontological argument is sound then the minimum modal ontological argument is and if the minimum modal ontological argument is not sound then no version of the ontological argument is.

But obviously Van Inwagen's argument assumes that necessity and concreteness are compatible properties. What reason could we have to believe this? Van Inwagen claims that the only argument that can show us this is a version of the cosmological argument.

Every fact has an explanation;

If a property F has, as a matter of contingent fact, a non-empty extension, then any explanation of this fact must somehow involve beings (concrete things) that do not have F;

Contingency (the property of being a contingent being) has, as a matter of contingent fact, a non-empty extension.

It obviously follows from these three premises that if there are, as a matter of contingent fact, contingent beings, there are also non-contingent beings – that is, necessary beings.²⁴

However, as Van Inwagen admits, this argument is flawed as its first premise (a variation on the principle of sufficient reason) is surely false. So the ontological

²³ Van Inwagen, P., "Ontological Arguments," *Nous* 11 (1977).

²⁴ Van Inwagen, "Why Is There Anything at All?," 97.

argument works only on the condition that this cosmological argument works but this cosmological argument is based on a highly implausible premise, so the ontological argument fails.

This means that premise (A2) of the subtraction argument is relatively plausible. The only argument whose conclusion is the denial of (A2) is not sound. So although (A2) has not much in its defence, it has even less against it and we can accept it.

7.4 Premise (A3)

(A3) The non-existence of any one of these things does not necessitate the existence of any other such thing.

(A3) The non-existence of any of the x_i that exist in w_1 does not necessitate the existence of any other concrete* object, whether or not these exist in w_1 . That is: for all worlds w and for all the concreta* x_i in w_1 , if x_i exists in w then if there is a world w^* where x_i does not exist, then there is a world w^{**} where the only existing concreta* are those of w except x_i (i.e. w^{**} is such that for every concrete* object y , y exists in w^{**} if and only if $y \neq x_i$ and y exists in w).*

Baldwin's defence of (A3) seems to be agnostic on the question of the criterion of concreteness. If any temporal object were not to exist, there would be no need for some other temporal object to exist.²⁵ For this reason his defence works just as well with our new criterion as it did with his own criterion.

²⁵ If we had used spatial existence as our criterion of concreteness then we might have worried about the world where only a single spatial object exists. If relationism is right then there might be problems about that object's being spatial. However with temporality as our criterion, all that is required is the possibility of change or events (even if the relationist account is right) for an object

(A3) is centrally about the notion of ontological independence. This is a fact glimpsed by Baldwin when he says:

The third premise of the subtraction argument (A3) can be regarded as expressing an implication of the conception of concrete objects as traditional 'substances' – things whose existence is independent of the existence of other things.²⁶

7.4.1 Lowe's argument against metaphysical nihilism

It is surprising then that Lowe,²⁷ who accepts something like this traditional notion of substance, disagrees with Baldwin on the question of nihilism. Moreover it is premise (A3) that he takes issue with.

I have no quarrel with premises (A1) and (A2) of Baldwin's version of the subtraction argument and am prepared to accept that the argument is valid... Hence, my opposition to the argument must focus on premise (A3).²⁸

The key to their disagreement is that Baldwin is asserting the independence of concrete objects and citing that independence as evidence that they might fail to exist without affecting the question of whether or not a world exists. Lowe admits the independence of concrete objects but claims that abstract objects are dependent on concrete objects. This highlights a flaw in Baldwin's argument – Baldwin thought that because concrete objects exist independently, their existence or non-existence makes no difference to the existence or non-existence of anything else. However this would only be true if concrete objects *both* depended on nothing else for their existence *and* had nothing else depend on them for their existence. Perhaps Baldwin thought that the second part of this conjunction was

to be concrete. An example that illustrates this is found in Lowe, *The Possibility of Metaphysics* 116-8.

²⁶ Baldwin, "There Might Be Nothing," 235.

²⁷ Lowe, *The Possibility of Metaphysics* 136ff.

²⁸ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 65.

trivial – that nothing (non-concrete) depended for its existence on concrete substances. Abstract entities like numbers and sets are often thought to be ontologically independent entities. But Lowe disagrees with this.

Lowe's²⁹ argument runs as follows: (i) metaphysical nihilism is false. (ii) (A1) and (A2) are true. (iii) (A1) and (A2) and (A3) lead to metaphysical nihilism. Therefore, (A3) must be false. Lowe's arguments in support of (ii) I have detailed in chapter 4 above. It should be noted that he is using the same criterion of concreteness as I am so his arguments don't need to be re-interpreted as Baldwin's and Rodriguez-Pereyra's do. His reasons for accepting (iii) – that the subtraction argument is valid are those given by Baldwin originally.³⁰ (Although it must be noted that Lowe³¹ says that he is dubious about the transitivity of the accessibility relation between worlds. If this is not correct then w_{nil} may not be accessible from this world although it may be accessible from a world accessible from this world. This would mean that the subtraction argument fails. The question of the correct modal logic is too large and tangential to look into in this thesis so I will just note that the answer to this question may have a bearing on what I am discussing.) So we now need to look at his argument for (i) – his argument that metaphysical nihilism is false, which is an argument against Baldwin's premise (A3).

Lowe's argument against nihilism is summed up in the following quote:

²⁹ Ibid.

³⁰ Baldwin's arguments may need to be re-phrased so as to avoid Paseau's problem in the way that Rodriguez-Pereyra rephrased his argument. I don't think any serious changes would need to be made in order to do this.

³¹ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 65.

... argue first that at least some abstract objects exist in all possible worlds (for instance the natural numbers), and next that abstract objects always depend for their existence upon concrete objects. From this conclude that at least some concrete objects exist in all possible worlds (but not necessarily the *same* concrete objects in all worlds, and so not necessarily any 'necessary being').³²

Let's look at this argument in more detail. The first thing to notice here is that the conclusion of this argument is different from that of the modal ontological arguments that we looked at earlier. In the modal ontological arguments the conclusion is that there exists a necessary concrete object. That means that there is one concrete object, which exists in every possible world. The conclusion of Lowe's argument, in contrast, is that it is necessary that there exist a concrete object. This means that every world contains at least one concrete object but it may not be the same object that exists in every world.

I will now look at each premise of Lowe's argument and the criticisms advanced by Rodriguez-Pereyra³³ and Baldwin³⁴ against Lowe's argument. Both sets of criticisms attack the premises rather than the form of the argument and Rodriguez-Pereyra agrees that the argument is valid.

In order to make it clear exactly which claims are being discussed I will now lay out the bare structure of Lowe's argument:

(L1) At least some abstract objects exist in all possible worlds.

(L2) Abstract objects always depend for their existence upon concrete objects.

Hence, at least some concrete objects exist in all possible worlds.

³² Lowe, "Why Is There Anything at All?," 113.

³³ Rodriguez-Pereyra, "Lowe's Argument against Nihilism.", Rodriguez-Pereyra, "Metaphysical Nihilism Defended."

³⁴ Baldwin, "There Might Be Nothing."

Lowe argues for (L1) on the basis that mathematical truths are necessary truths and depend for their truth on the existence of certain mathematical objects. He argues for (L2) on the basis that the existence of only abstract objects (specifically universals and sets) leads to a contradiction. If both of these claims are true then the conclusion follows.

7.4.1.1 Lowe's first premise (L1)

Lowe's first premise then is that at least some abstract objects exist in all possible worlds. His argument for this position is based around the natural numbers. He tries to imagine a world in which the natural numbers do not exist.³⁵ He says that in such a world we would have no option but to be fictionalists about mathematics. We would have to accept that so-called mathematical 'truths' are not truths at all but are just useful falsehoods. Lowe dismisses fictionalism claiming that the question we should be asking is: given our assumption that the natural numbers do exist in this world, can we make sense of them not existing in other worlds? He also points out that the most objectionable aspect of fictionalism is the thought that mathematical truths might be contingent. Surely if $2+2=4$ then that is necessarily true. If it is false then it is surely necessarily false. So on the assumption that the natural numbers exist in this world, the most sensible belief to hold is that they exist in every world. The natural numbers do not exist in time and so they are abstract. So some abstract objects exist in every world.

The question of mathematical fictionalism is too large an issue to engage in here.³⁶ Suffice to say that if embracing fictionalism is required to refute Lowe's

³⁵ Lowe, "Why Is There Anything at All?," 118.

³⁶ A fuller discussion of this debate can be found in Field, H., *Realism, Mathematics and Modality* (New York: Blackwell, 1989), Wright, C., "Why Numbers Can Believably Be: A Reply to Hartry

argument then it is quite a persuasive argument as fictionalism is quite an extreme position. Even if fictionalism is true, it may still be the case that there are abstract objects in every possible world. For example, the fictions referred to by the fictionalist – they surely don't exist in time. As such they are abstract. This is enough to support Lowe's premise (L1) whether or not we accept fictionalism.

7.4.1.1.1 *Rodriguez-Pereyra's attack on (L1)*

Rodriguez-Pereyra³⁷ attacks Lowe's defence of premise (L1). He suggests two interpretations of Lowe's claim that mathematical truths are necessarily true and claims that neither can be used to justify Lowe's premise.

The first interpretation is that mathematical truths are necessarily true in the sense that there is no possible world where they are false. However, this leaves open the possibility that there is a world where there are no mathematical truths. In this world it is not the case that $2+2=4$ is false, rather there is no fact of the matter. Lowe needs to rule out this sort of world as it would make his first premise false.

This is a funny interpretation of 'necessarily'. It seems to me closer to what we usually mean by 'essentially'. If we want to maintain that mathematical claims exist in some worlds and not in others but are true in all those that they exist in then we would say that they are essentially true rather than necessarily true.

The second interpretation that Rodriguez-Pereyra offers is that

...there is no possible world in which there are no mathematical truths.³⁸

Field," *Revue Internationale de Philosophie* 42 (1988), Wright, C. and B. Hale, "Nominalism and the Contingency of Abstract Objects," *Journal of Philosophy* (1992).

³⁷ Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 339-40.

³⁸ Ibid.: 339.

This interpretation corresponds with our normal understanding of the term 'necessarily' and is strong enough to give Lowe the result that he requires. However Rodriguez-Pereyra argues that this is question begging if used in Lowe's argument. This is because the claim that Lowe is trying to argue for is the claim that necessarily there are abstract objects. He argues for this by claiming that there are mathematical truths necessarily. The problem is that mathematical truths are abstract objects – they are true propositions.

If Lowe were to say that the mathematical truth-bearers were not propositions would this help? Rodriguez-Pereyra claims that it would not. This is because Lowe would still have to claim that some other kind of objects are mathematical truth-bearers.

So Rodriguez-Pereyra has found a dilemma for (L1). If these objects (mathematical truths) are abstract then he is assuming (L1) in his attempt to prove (L1). If these objects are concrete then he is assuming the conclusion of the argument that (L1) is supposed to support. So he will be unable to argue for his first premise without assuming the conclusion of the anti-nihilist argument that this is a premise of. This is because he would be assuming that concrete objects necessarily exist. This would also be question begging. So Rodriguez-Pereyra concludes that the only interpretation of Lowe's claim, which is strong enough to support his first premise, is question begging.

7.4.1.1.2 *Lowe's response*

In his latest paper on the subject, Lowe³⁹ replies to Rodriguez-Pereyra's criticisms. He sums up the limits of his agreement with Rodriguez-Pereyra on the subject saying:

As Rodriguez-Pereyra correctly says, I believe that (1) [Lowe's first premise] is true because (a) I reject mathematical fictionalism and hold that mathematical truths exist and are made true by facts involving the existence of abstract mathematical objects and (b) I believe that mathematical truths are necessary truths.⁴⁰

Lowe replies to Rodriguez-Pereyra's claim that (b) must be question-begging in order to be sufficient for Lowe's argument by claiming that Rodriguez-Pereyra has confused the idea of a mathematical truth-bearer. As an example of this he quotes Rodriguez-Pereyra saying

... the truth-bearers of ... mathematical truths are mathematical propositions.⁴¹

Mathematical truths, Lowe claims, *are* truth-bearers – they do not *have* truth-bearers as Rodriguez-Pereyra seems to think. He also claims that the details of whether these truth-bearers are propositions or something else are irrelevant to his anti-nihilist argument. He does acknowledge that if they were used in his anti-nihilist argument then it would be question-begging but claims that this is not the case. He claims that he only needs to say that mathematical truths obtain in every possible world. He does not have to claim that some particular truth-bearers exist in every possible world. Here he is using the distinction between something being true at a world and some truth-bearer existing in a world. Rodriguez-Pereyra had

³⁹ Lowe, "Metaphysical Nihilism and the Subtraction Argument."

⁴⁰ Ibid.: 71.

⁴¹ Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 339. Quoted in Lowe, "Metaphysical Nihilism and the Subtraction Argument," 72.

assumed that in order for mathematical claims to be true at every world, it must be the case that some truth-bearers for those claims exist in every world. But Lowe is claiming that this is not the case and we only need to assert that mathematical claims are true at every world, not that their truth-bearers exist in every world.

Even if we thought that contingent entities, such as particular ('token') sentences or statements, were the only possible truth-bearers, and hence that not every possible world is a world in which truth-bearers exist, we should not want to say that truths *do not obtain* in every possible world...⁴²

7.4.1.1.3 *Rodriguez-Pereyra's next attack*

Rodriguez-Pereyra⁴³ replies to Lowe's points. According to Lowe's reply all that Lowe needs to assume is that mathematical truths obtain necessarily, not that mathematical propositions exist necessarily. This is not circular in the way that Rodriguez-Pereyra had alleged.

However he is not fully satisfied by Lowe's distinction between a truth obtaining at a world and the proposition that expresses that truth existing in a world. He asks

How can a truth obtain without a truth bearer obtaining? And what is it for a truth bearer to obtain if not to exist? What is it that has the property of being true when a truth obtains but no truth bearer does?⁴⁴

7.4.1.1.4 *The Problem: Rodriguez-Pereyra's suppressed anti-ersatz premise*

Let's see how we can deal with these questions. All along I have been looking at two issues within the metaphysics of modality. I have been looking at the

⁴² Lowe, "Metaphysical Nihilism and the Subtraction Argument," 72.

⁴³ Rodriguez-Pereyra, G., "Metaphysical Nihilism Defended: Reply to Lowe and Paseau," *Analysis* 62 (2002 forthcoming).

⁴⁴ Ibid.: 180.

competing accounts of possible worlds and also at the issues surrounding metaphysical nihilism. I have been arguing that the answers we give to each of these questions affects the answers we give to the other one. I think that this connection may shed some light on the difference between Rodriguez-Pereyra and Lowe on this issue too.

Rodriguez-Pereyra⁴⁵ is a (modified) Lewisian realist – so he denies what I have called the ersatz view. Lowe⁴⁶ is an ersatz theorist. This means that Rodriguez-Pereyra thinks that possible worlds are, something like, real universes that can contain abstract and concrete objects. Lowe on the other hand thinks that possible worlds are merely maximally consistent situations. Lowe thinks that possible worlds are the sorts of things according to which something could be the case. For Lowe, all the possible worlds exist in this world. Rodriguez-Pereyra thinks that they are the sorts of things that objects can exist in.

I think that this difference on the nature of worlds is responsible for the disagreement about whether truths can obtain in a world where the proposition that expresses them does not exist. For Rodriguez-Pereyra, as a non-ersatzer, if a certain fact obtains at a world then the proposition that expresses that fact must exist in that world. For Lowe, as an ersatz theorist, a fact may obtain at a world although there may be no facts or propositions existing in that world. All that he means when he says that a truth obtains at a world is that it is true (in this world) that in that world, so and so is the case. For Lowe it may be the case that there is a world where the proposition 'no propositions exist' is true. Of course there is no

⁴⁵ Rodriguez-Pereyra, "Modal Realism and Metaphysical Nihilism".

⁴⁶ Lowe, *A Survey of Metaphysics* 81-2 and 128ff.

proposition in that world that expresses this fact but it is a truth about that world which is true in this one actual world. To use Lowe's own analogy, there might be a novel that describes a world in which there are no novels. There is nothing contradictory about this.

7.4.1.1.5 Conclusion

So that is why they disagree but which one is right? Well, I have shown in chapter 5 above that Rodriguez-Pereyra's attempts to reconcile nihilism with anything other than ersatzism are far from complete. At the moment the only fully worked out theory of possible worlds that is compatible with nihilism is ersatzism. This attack on Lowe is based on a suppressed anti-ersatz premise – that if something is true at a world then the proposition that expresses that truth must exist in that world. This belief in turn rests on Rodriguez-Pereyra's acceptance that worlds are the sort of things that objects exist in. But, for an ersatzer, a proposition may be true at a world even if it does not exist in that world. So 'there are no abstract and no concrete objects' could be true at a world although that proposition itself would not exist in that world. This is because ersatz worlds are not real physical worlds, they are representations of ways the world could have been. A proposition or state of affairs can represent a world at which there are no propositions or states of affairs, just as a picture can represent a room where there are no pictures. Lowe is therefore arguing for a consistent position – the ersatz view of worlds is compatible with the denial of metaphysical nihilism (see section 6.2.6 above) – whereas Rodriguez-Pereyra wants to defend nihilism using anti-ersatz ideas, even though the ersatz account is the only fully worked-out theory of possible worlds that we know to be compatible with nihilism.

So we have no good reason to doubt Lowe's first premise. It is compatible with his other beliefs. Rodriguez-Pereyra's criticisms of it, which are motivated by his belief in nihilism, turn on ideas, which appear to be incompatible with that nihilism.

7.4.1.2 Lowe's second premise (L2)

Lowe's second premise, that abstract objects are ontologically dependent on concrete objects is the really controversial piece of his argument. The argument proceeds in the form of a *reductio*. The *reductio* assumption is that there could be abstract objects in a world with no concrete objects. Lowe shows that this supposition leads to an absurdity and so we should abandon it.

The first step in the argument is to assume that the only possible abstract objects are universals and sets. Lowe assures us that

From this initial contention it would follow that all 'other' abstract objects, such as *propositions, possible worlds, and numbers* ... are themselves either universals or sets.⁴⁷

The natural numbers are usually believed to be sets (abstract particulars) but Lowe claims that they are universals. As both of these kinds of entity are being discussed, the argument from here on works equally well whichever of these two views one holds.

Lowe then assumes

... an 'Aristotelian' or 'immanent' realist account of universals⁴⁸

according to which universals exist if and only if there are particulars which instantiate them.

⁴⁷ Lowe, *The Possibility of Metaphysics* 252-3.

⁴⁸ Lowe, "Why Is There Anything at All?," 116.

Once we have this assumption we can start to think about the empty world. Imagine a world in which only abstract objects exist. Rodriguez-Pereyra⁴⁹ suggests calling this w_a – the a standing for abstract – so I will follow this useful convention. If the only abstract objects are universals and sets, as we have assumed, then the only universals that can exist in this world are those that have abstract particulars (sets) as their instantiations. Sets, however, can only exist in worlds where their members exist.⁵⁰ In the world with only universals and sets, where the universals depend for their existence on the sets, the sets cannot then in turn rely on the very same universals to be their members. But, there are no other members available for sets.

One way out might be this: we usually think that even in an empty world we can generate an infinite number of sets. This involves starting with the null set and then invoking the set containing the null set, and so on. This is where Lowe's second very controversial claim comes in. He claims that the null set is

... as good an example as we can get of a purely fictional entity...⁵¹

His argument is based on the fact that the identity of a set is determined by its members. So the set with no members, he claims is not a set at all. If there is no empty set then there are no other pure sets. (It is clear now why Lowe must hold that the natural numbers are universals rather than sets. Those philosophers and mathematicians who believe that numbers are sets, inevitably believe that they are

⁴⁹ Rodriguez-Pereyra, "Metaphysical Nihilism Defended," 174.

⁵⁰ This is true in an actualist ontology like Lowe's. A modal realist in the Lewisian tradition could claim that there is a set of me and my counterparts, for example, or perhaps a set containing various possible worlds. However if Lewis's ontology is correct then we know that nihilism is incorrect as it is incompatible with Lewis' compositionism. Lowe's assumption of actualism is permissible as I have shown that the only fully worked out theory of possible worlds a nihilist can hold is ersatzism which is a form of actualism.

⁵¹ Lowe, "Why Is There Anything at All?," 116.

pure sets. Lowe's arguments against the empty set and pure sets in general, if they hold, hold in all possible worlds including this one.) If there are no pure sets, there must only be impure sets. But impure sets by definition must have as their elements non-sets. But, by hypothesis, w_a is a world that contains nothing but sets and universals. The universals depend for their existence on the sets so the sets cannot depend for theirs on the universals. But sets do depend on their members. So we have a problem. There are no suitable members available for these sets. The only option is to deny our reductio assumption that there are only abstract objects (universals and sets) in w_a and accept that there must be some concrete objects in that world. Hence there cannot be a world with only abstract objects – there must be at least one concrete object in any world.

So Lowe has argued that in any world in which there are abstract objects, there must be at least one concrete object. He has earlier argued, in support of his first premise, that there are abstract objects in every world and so there must be at least one concrete object in every world (see 7.4.1.1 above).

Lowe⁵² considers one possible objection to this view. His argument is based on the idea that the natural numbers exist necessarily and depend for their existence on the existence of at least one concrete object. But how can we get all the infinitely many natural numbers from just one concrete object or even any finite number of objects? This is particularly pressing as Lowe's account of numbers as universals requires that each number is a different universal and his Aristotelian realism about universals requires that each of these must have an instantiation. Lowe thinks that this is not a serious problem. He points out that if one accepts

⁵² Ibid.: 117.

the existence of both particular objects and the unit sets of those objects then we only need one concrete object to yield an infinite number of sets. These sets are abstract particulars and so can instantiate universals. The numbers are some of the universals that are instantiated by these sets. So although we cannot get an infinite number of universals from just one concrete object, we can get an infinite number of abstract particular objects from that one concrete object. We can then get an infinite number of universals from that infinite number of abstract particulars.

If we are not willing to accept the existence of unit sets as separate objects over and above their members then another method of deriving all the natural numbers is available once we have two or more particulars. The set containing both of these is then our third particular and so on.

7.4.1.2.1 *Rodriguez-Pereyra's attack on (L2)*

Rodriguez-Pereyra⁵³ also attacks this second premise of Lowe's argument. More specifically he rejects Lowe's claim that a world with only sets and universals, as described by Lowe, is impossible. Rodriguez-Pereyra claims that it is not obviously problematic to say that the universals depend on the sets and the very same sets depend on those universals. Moreover Rodriguez-Pereyra uses Lowe's own distinctions to argue against Lowe's claim. Rodriguez-Pereyra distinguishes between three types of dependence, which are all present in Lowe's work. He then argues that only one of these types would lead to the vicious circle of problematic mutual dependence whereas the other two are non-vicious mutual dependencies. Furthermore he argues that sets and numbers are only mutually

⁵³ Rodriguez-Pereyra, "Lowe's Argument against Nihilism.", Rodriguez-Pereyra, "Metaphysical Nihilism Defended."

dependent in the two non-vicious ways and not in the problematic way. So

Rodriguez-Pereyra denies Lowe's claim that:

... in such a world the sets depend for their existence upon the universals and the universals depend for their existence upon the sets, creating a vicious circle, which deprives both universals and sets of the possibility of existence.⁵⁴

The first form of dependence is what Lowe⁵⁵ calls weak existential dependence.

(D1) x depends for its existence upon y =_{df} Necessarily, x exists only if y exists.⁵⁶

Numbers and sets do weakly existentially depend on each other but Rodriguez-Pereyra claims that this sort of dependence is not sufficient to cause a problem for w_a . This is because there certainly are relatively unproblematic cases of mutual weak existential dependence. For example Socrates and Socrates' life are both weakly existentially dependent on each other. Necessarily, Socrates exists only if his life exists and necessarily, Socrates' life exists only if Socrates exists. The natural numbers are also all mutually weakly existentially dependent on each other – this is a fact that Lowe made use of in his argument above (see 7.4.1.2 above). So if these examples of weak existential dependence are non-problematic, then the mutual weak existential dependence of numbers and sets should not cause a problem.

Generic dependence is defined by Lowe as:

(D1g) x depends for its existence upon objects of type T =_{df} Necessarily, x exists only if something y exists such that y is of type T .⁵⁷

⁵⁴ Lowe, *The Possibility of Metaphysics* 254. Quoted in Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 336.

⁵⁵ Lowe, *The Possibility of Metaphysics* 137, 53. Quoted in Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 336.

⁵⁶ Lowe, *The Possibility of Metaphysics* 137.

Do sets and numbers / universals mutually depend in this way? Is it a problem for w_a if they do? Rodriguez-Pereyra⁵⁸ points out that, in Lowe's ontology, numbers generically depend on sets. This is because numbers are universals, and a given universal cannot exist without its instances, and those instances are sets. Sets in turn generically depend on numbers. This is because a set necessarily instantiates a universal (specifically, a number) so if sets exist then numbers exist too i.e. necessarily some set, x , exists only if something y exists such that y is a number.

So, yes, numbers and sets are mutually generically dependent but Rodriguez-Pereyra argues that this is not a problem for w_a in the way that Lowe requires. An example of harmless mutual generic dependence is that between universals and particulars (the case we are discussing is one instance of this). This is countenanced by Lowe himself, amongst many others. The mutual generic dependence of sets and numbers is also widely accepted. This cannot be the problem that leads to the impossibility of w_a as Rodriguez-Pereyra says:

... if this sort of mutual dependence between sets and numbers does not make impossible other possible worlds in which sets and numbers exist, it surely cannot make impossible the world in which only sets and numbers exist.⁵⁹

It must then be the third type of mutual dependence, which causes the problem for w_a . Strong existential dependence or identity dependence is defined by Lowe as:

(D1**) x depends for its existence upon y =df Necessarily⁶⁰, the identity of x depends on the identity of y .⁶¹

⁵⁷ Ibid. 141.

⁵⁸ Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 337.

⁵⁹ Ibid.

⁶⁰ Lowe (p.147) mentions that the word 'necessarily' is superfluous here as identity dependence is always necessary.

or as Rodriguez-Pereyra says

... which thing of its kind y is fixed, or metaphysically determines, which thing of its kind x is.⁶²

This is a much stronger claim than the other two and although Lowe accepts mutual generic and mutual weak existential dependence, he claims that mutual identity dependence cannot work. This is because of the key role that criteria of identity play in Lowe's ontology. If identity criteria were viciously circular then they would not be able to fulfil the explanatory role that Lowe demands of them. Cases of mutual identity dependence would be viciously circular as the identity conditions for some objects would be given in terms of some other objects whose identity criteria are in turn given in terms of the first objects.

Lowe needs this problematic form of mutual dependence in order to demonstrate the problem with w_a . However, Rodriguez-Pereyra says that this sort of dependence is not exhibited by the sets and numbers in w_a . He admits that sets are identity dependent on their members (the universals of w_a) but denies that this is an instance of mutual identity dependence. The universals of w_a are not in turn dependent for their identity on the sets in w_a . Lowe claims that universals are not even weakly existentially dependent on their instances and so they cannot be strongly existentially dependent.⁶³ The identity of numbers is given by their place in the number series.

⁶¹ Lowe, *The Possibility of Metaphysics* 147.

⁶² Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 338.

⁶³ It might be thought that this claim conflicts with the earlier claim that numbers and sets do weakly existentially depend on each other. After all, according to Lowe's view, numbers are universals and sets are their instances. I assume that the distinction is that qua numbers and sets, there is a weak existential dependence, whereas qua universals and instances, there is not. This is why a number, x , and a set containing x members fulfil the criterion for weak existential dependence whereas the universal, x , and its instance, say a set containing x objects, do not

...what fixes the identity of $\{7\}$ is the identity of 7 – though the identity of $\{7\}$ does not fix that of 7.⁶⁴

So in this section we have seen Rodriguez-Pereyra's arguments against Lowe's premise (L2). These arguments are based on Lowe's three types of dependence relation. Lowe's arguments for (L2) are based on the claim that a world with only abstract objects, specifically numbers (a kind of universal) and sets (particulars), would involve a circular kind of mutual dependence between these objects. We saw that two of Lowe's types of mutual dependence (weak existential dependence and generic dependence) do hold between such objects but these lead to no such problem. It is only if the third type of mutual dependence (strong existential dependence or identity dependence) were to hold that Lowe's reductio would work. However, Rodriguez-Pereyra has argued that this third type of mutual dependence does not hold in this case.

This means that there is no problem with the existence of w_a . Hence Lowe's anti-nihilist argument fails and nihilism seems more plausible again.

7.4.1.2.2 *Lowe's response.*

But that is not the end of the matter. Lowe⁶⁵ has replied to Rodriguez-Pereyra's criticisms and Rodriguez-Pereyra⁶⁶ has replied to that reply. Lowe disagrees with Rodriguez-Pereyra's claim that

weakly existentially depend on each other. So whilst it cannot be said generally that all universals and their instances will weakly existentially depend on each other, it is true that some universals (numbers) and some of their instances (sets) do weakly existentially depend on each other.

⁶⁴ Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 338.

⁶⁵ Lowe, "Metaphysical Nihilism and the Subtraction Argument."

⁶⁶ Rodriguez-Pereyra, "Metaphysical Nihilism Defended."

... because such a mutual dependence [generic dependence] is unproblematic in *other* worlds in which sets and universals exist, we should therefore suppose it to be unproblematic in the putative world in which *only* sets and universals exist.⁶⁷

Rodriguez-Pereyra had pointed out that most philosophers accept that universals and sets co-exist in all uncontroversial worlds and so sees no reason to suspect the situation is different in w_a . But Lowe thinks that w_a is relevantly different to the other worlds. The relevant difference is that in w_a there are no other entities apart from universals and sets (except perhaps entities like propositions which can be reduced to universals or sets). To quote Lowe's example:

One might as well argue that because there are, unproblematically, worlds in which every brother or sister (sibling) necessarily has a brother or sister, it is unproblematic to suppose that there is a world in which *only* brothers and sisters exist.⁶⁸

His point here is that while it is all right for sets and universals to be mutually generically dependent in worlds where other entities also exist, it may be problematic if only these two kinds of entities exist. So the mutual dependence required to make w_a possible is not acceptable in w_a although it would be in other worlds.

However Lowe also rebuts Rodriguez-Pereyra's criticism at a much more fundamental level. He says that his initial point was not based on sets and universals being mutually dependent *in the same way*. Lowe accepts Rodriguez-Pereyra's claim that in w_a sets are strongly existentially dependent on universals but the universals are only generically dependent on the sets. Thus there is no mutual strong existential dependence and so no problem of circularity arising from mutual strong existential dependence. However that does not mean there is

⁶⁷ Lowe, "Metaphysical Nihilism and the Subtraction Argument," 68.

⁶⁸ Ibid.

not a circularity arising from mutual dependence where the dependence is strong existential dependence in one direction and generic dependence in the other.

Lowe gives an example of a world which would be impossible in the same way as he claims w_a is impossible, namely that it contains only two kinds of entities such that the tokens of one kind of entity (sets) are strongly existentially dependent on the tokens of the second kind (universals) while the very existence of the second kind of entity (universals) is generically dependent on the existence of some tokens of the first kind (sets). In Lowe's example there are two kinds of entities: composite objects (which he calls 'holons') and their component parts (which he calls 'partons'). The holons are necessarily composed of partons but not necessarily composed of those particular partons. The identity of the partons is dependent on the specific holons that they are part of. This world is impossible according to Lowe. We can't give non-circular existence and identity conditions for the holons. A condition for the existence of any holon, h is that the partons of which it is composed exist. But

... a necessary condition of the existence of any given parton, say p_1 , is that the holon h of which it is a part should exist.⁶⁹

Similarly, two holons are identical just in case they share a parton but

... what determines whether the same parton, p_i , can belong both to holon h_1 and holon h_2 is the identity or non-identity of h_1 with h_2 .⁷⁰

The key is Lowe's claim that, in general, if there are no non-circular existence and identity conditions for kinds of objects in a given world then those kinds of objects cannot exist. In order to clarify this he points out the different ontological

⁶⁹ Ibid.: 69.

⁷⁰ Ibid.

status of universals and substances. Universals, according to the Aristotelian account, are not ontologically independent. They exist only if some instances of them exist. Lowe uses the phrase 'ontological priority' to describe this situation – instances of a universal have ontological priority over the universal of which they are instances. Substances, on the other hand, are by definition independent and exist regardless of the existence of other entities. Substances have ontological priority over everything else. The sort of mutual dependence that universals and sets have could be countenanced in an otherwise empty world if universals were independent as substances are i.e. if universals had ontological priority over sets. However, for an Aristotelian, like Lowe, universals do not have sufficient ontological priority to avoid these problems. So Lowe's argument holds.

Rodriguez-Pereyra⁷¹ replies by asking us what is so problematic in having circular existence and identity conditions. He claims that in a realist metaphysics there may be such anomalies. He even denies there would be a problem if two types of entity were mutually strongly dependent.

It seems that Lowe might accept this claim for some entities. He says:

... individual substances – given, as I believe, that they are not ontologically subordinate to entities of any other category – are items for which we cannot quite generally supply non-circular existence- and identity-conditions.⁷²

What seems to be important here is that Lowe specifies that circularity can be acceptable for objects which are not ontologically subordinate to any other objects.

⁷¹ Rodriguez-Pereyra, "Metaphysical Nihilism Defended," 175-6.

⁷² Lowe, "Metaphysical Nihilism and the Subtraction Argument," 71.

7.4.1.2.3 *The issue*

So to sum up the arguments here: Lowe is running a reductio on the claim that there could be just universals and sets in a world. The argument is that in such a world an impossible kind of mutual dependence would exist between the universals and sets. Rodriguez-Pereyra replies by distinguishing three kinds of dependence in Lowe's work. He then points out that whilst two of these kinds of mutual dependence hold between universals and sets only the third kind, which does not hold between universals and sets, causes the problems that Lowe refers to. Lowe accepts this and points out that this kind of dependence would be unproblematic between universals and sets in any world other than the empty world but is impossible in the otherwise empty world. Furthermore, he claims that the mutual dependence he referred to was not the same kind of dependence in each direction – it is strong existential dependence in one direction and generic dependence in another direction. Finally Lowe argues that in fact this kind of dependence could in principle hold in the empty world between two kinds of objects but not between universals as construed by the Aristotelian account and sets.

This notion of ontological priority seems to be making an important contribution to this argument. Lowe's key move is the claim that in any given ontology, it may be impossible to give non-circular identity and existence conditions for the kind of entity with over-riding ontological priority. Why should this be the case? Rodriguez-Pereyra claims that it may be all right for certain entities to have non-circular identity and existence criteria and Lowe seems to be agreeing with this. The important question is what these certain entities are and why is it all right for them to have non-circular identity and existence criteria. In Lowe's ontology

substances have ontological priority over everything else and so it is substances which can legitimately lack non-circular existence and identity conditions. For Platonists about universals, universals may have ontological priority. But what is ontological priority and how is it linked to circularity of existence and identity conditions?

Ontological priority seems to be closely linked to independence. This is indicated by Lowe when he says that universals do not have ontological priority over their instances according to the Aristotelian understanding of universals but would have if a Platonist account of universals was correct. This ontological priority or relative independence also explains why certain fundamental entities have to have circular existence and identity conditions.

One implication of all this, which I am happy to accept, is that individual substances – given, as I believe, that they are not ontologically subordinate to entities of any other category – are items for which we cannot quite generally supply non-circular existence- and identity-conditions.⁷³

It seems to be this fundamental, independent nature of substances that leads to the lack of non-circular identity and existence criteria for them. In a hierarchical metaphysics where each category of entity is grounded in or can be reduced to a higher level category, there must be some most fundamental level in order to avoid an infinite regress.⁷⁴ According to Lowe only one kind of object can have this feature – the most fundamental kind of object – substances in Lowe's ontology. This is indicated by Lowe:

⁷³ Ibid.

⁷⁴ There are some conflicting metaphors in this sentence. You might well ask how can something be reduced to a higher level? Well I think these are just metaphors and although they conflict with each other they are both consistent with current usage. The key is that in Lowe's category theory the most fundamental kind of category (entities) is represented as being the highest level. The conflict stems from this but I think it is superficial and that the point remains clear.

A clear consequence of the substantial constituents approach ... is its commitment to the existence of ungrounded entities at the base of the hierarchy of composition ... Some thing or things ... must simply persist, without more ado, and in this all higher-level material persistence must ultimately be grounded.⁷⁵

Of course in anti-nihilist arguments independence is the key notion. In denying premise three of the subtraction argument the anti-nihilist is denying the absolute independence of concrete objects or asserting the dependence of worlds on the objects in those worlds.

This fact may lead us to think again about the nature of possible worlds and how questions about the nature of possible worlds are related to questions about metaphysical nihilism. If a denial of premise (A3) of the subtraction argument means asserting that worlds are dependent on the objects in the worlds, what view of worlds are we talking about? The obvious choice would be the compositionalist view of worlds. This is because for the compositionalist it is true that worlds are dependent on the objects in those worlds as they are composed of those objects. However the ersatz view of worlds may also be consistent with the denial of nihilism (see 6.2.6 above). This is because if Lowe's arguments are right then there is no maximally consistent situation according to which there are no concrete objects. This is exactly what Lowe's argument is designed to show – that the non-existence of concrete objects (or more specifically, the existence of only abstract objects) is inconsistent. So working out whether ersatzism or compositionism is right won't solve this problem for us.

Let's consider again the form of Lowe's argument in defence of his premise (L2). We have noted above that it is a reductio on the claim that a world could exist

⁷⁵ Lowe, *The Possibility of Metaphysics* 120.

with only universals and sets. However, as with all reductios there are other claims that are involved in deriving the absurdity and we should consider all of these before deciding which one to reject. So let's look at the other premises in Lowe's defence of (L2).

(Reductio premise) There is a world with only abstract objects.

(L4) The only abstract objects are sets and universals (all others can be reduced to one of these).

(L5) Aristotelian realism about universals: a universal exists at a world only if at least one instantiation of that universal exists at that world.

(L6) There is no such thing as the empty set.

All of these claims are involved in deriving the absurdity that leads Lowe to deny that there is a world with only abstract objects. So it is open to the nihilist to deny any of these other claims rather than the reductio claim. The most controversial of these claims is surely the denial of the null set. Of course Lowe wants to maintain standard arithmetic, but he also wants to deny the metaphysical claim that there is some object which is the null set. This is discussed further in 7.4.2 below. Another option would be to deny Aristotelian realism about universals. A lot has been written on this debate and I can't do justice to a discussion of it here but we should acknowledge that philosophers who favour a Platonist conception of universals will be able to deny Lowe's anti-nihilist conclusion. L4 falls out of Lowe's category theory. He claims that entities can be divided into universals and particulars.⁷⁶ All universals are abstract. Within the category of particulars, there is a further subdivision into abstract particulars and concrete particulars. Sets are

⁷⁶ Ibid. 180ff and 220 ff.

the only example of abstract particulars that Lowe accepts. Even if we did accept other abstract entities that are not reducible to sets and universals, we could probably reconstruct something similar to L4 and so the argument would still work. So in the broader discussion of Lowe's argument in the next section, we should remember that the defence of the second premise rests on these additional premises as well as his reductio premise.

7.4.2 Objections to Lowe's argument

It should be clear now how Lowe's argument denies premise (A3) of the subtraction argument. (A2) asserts the contingency of any given concrete object – Lowe agrees with this (hence both the metaphysical nihilists and Lowe deny the existence of a necessary being). (A3) says that the existence of concrete objects at all is contingent. Lowe denies this. This is summed up by Rodriguez-Pereyra when he says:

What Lowe does argue for is that it is necessary that there are concrete entities, but these might be contingent ones.⁷⁷

One objection to Lowe's argument is that he is being inconsistent in his appeal to our intuitive mathematical beliefs. The argument would be that in premise one, when he asserts that mathematical objects exist necessarily he is arguing that our intuitions about mathematics and numbers are generally right. In the second premise, however, he is arguing that numbers (and all abstract objects) depend for their existence on concrete objects, which is a less commonly held view and might be seen as counter-intuitive. Lowe is then thought to be invoking intuitive support for a counter-intuitive position.

⁷⁷ Rodriguez-Pereyra, "Lowe's Argument against Nihilism," 335.

However this criticism doesn't seem well founded. Metaphysical inquiry does need to take into account our prior intuitions but it is much more than merely formalising the most commonly held intuitions we hold about metaphysical questions. In a thorough and objective investigation into metaphysics we have to be prepared to acknowledge that some of our intuitions will be rejected. This fact is obvious once we consider that as individuals we often hold conflicting intuitions, especially on more obscure questions and that any two or more people are likely to have some conflicting intuitions, which they cannot agree on. This is the very reason why we need to do philosophy in a systematic and formal way; to work out which intuitions we have good reason to keep and which should be rejected in the light of more robust argument. Intuition is not a unified doctrine which we must either embrace or reject completely, it is one of the many tools we have available and can be used in whatever way we can justify using it.

Secondly, Lowe's argument is not based on appeals to intuition. I suppose that some of the arguments against fictionalism may be seen as intuitive but that is surely a benefit of those arguments rather than a drawback.

Another version of this problem is picked up by Baldwin⁷⁸ who also criticises Lowe's points on the basis that they force us to reject some key mathematical intuitions. Specifically it is Lowe's denial of the existence of the empty set which Baldwin takes issue with. Baldwin claims that this denial is in conflict with Lowe's Aristotelian account of numbers as universals.

...on the Aristotelian theory of number, the existence of the number 0 demands that there be at least one 0-membered set, i.e. the null set. But, for Lowe, there is no such set: so his arithmetic is not that familiar theory to

⁷⁸ Baldwin, "There Might Be Nothing," 236-7.

whose intuitive necessity he appeals, but a radical revision of it, which makes no reference to the number 0.⁷⁹

Baldwin's version of this problem is more serious than the one I mentioned above. This is because it appeals not to philosophical intuitions but to more strongly held mathematical intuitions about basic arithmetic. While it might be reasonable to reject some of our intuitions about the more obscure points of modal metaphysics, surely there is something wrong if we must re-write the fundamentals of our arithmetic.

Lowe⁸⁰ does not accept Baldwin's charge that he is forced to adopt an unconventional version of arithmetic. Lowe wants to deny that there is any object, which is the number 0. He believes we can still maintain all the truths of mathematics. It is not our arithmetical intuitions which are being abandoned, it is some of our philosophical intuitions about arithmetic. These are far less central to our knowledge. As such the arguments I invoked above will justify the rejection of these intuitions.

... it seems to me that our intuitions about the necessity of arithmetical truths in no way hinge upon uncritical acceptance of the existence of 'the number 0'. It is not as though no sense can otherwise be made of such arithmetical propositions as ' $1-1=0$ '. On the contrary, we typically explain this to a child as meaning 'One take away one leaves nothing' – and the thought that 'nothing' denotes a special kind of something is one fit only for the humorous works of a Lewis Carroll.⁸¹

So what does Lowe think the null set is? We can start by saying what he doesn't think it is. Lowe does not want to identify numbers with sets. So the null set is not identical with the number 0. This is because Lowe thinks that numbers are

⁷⁹ Ibid.: 237.

⁸⁰ Lowe, *The Possibility of Metaphysics* 254n.

⁸¹ Ibid.

universals whereas sets are particulars. In fact Lowe thinks that null set isn't anything – it doesn't exist. His argument is that the identity of a set is determined by the identity of its elements and the null set has no elements so has no identity.⁸² We have already seen that, in Lowe's ontology, only substances can exist without non-circular identity conditions so there must be no null set.

Of course the nature of the empty set is something I have already discussed (see 5.2.3 above). I dismissed Rodriguez-Pereyra's claims that memberlessness is a genuine ontological feature shared by the empty set and non-sets. Lowe raises a similar issue to Rodriguez-Pereyra but draws a different conclusion:

Many things have no members: what makes just one of these qualify as 'the empty set'? Indeed, what distinctive properties does 'the empty set' have: how would we recognize it if we came across it? How do we know, for instance, that Mars or Napoleon is not 'the empty set'? Presumably, because neither of these is a set. But why isn't either of them a set? The obvious answer is: because neither of them has any members, in the set-theoretic sense of 'member'. But of course, 'the empty set' is supposed not to have any members either, by definition: so what makes it a 'set'?⁸³

Lewis also sees this similarity:

... the null set's behaviour is not, after all, so very peculiar ...lacking members is not so queer, all individuals do it.⁸⁴

So while Rodriguez-Pereyra sees this alleged similarity between the empty set and non-sets and attributes some common property to them, Lowe sees the same alleged similarity and denies the existence of the null set. Can my rejection of Rodriguez-Pereyra's point get us anywhere on the discussion of this issue? My point is that if there is an empty set then there is no metaphysically significant

⁸² Ibid.

⁸³ Ibid.

⁸⁴ Lewis, D., *Parts of Classes* (Oxford: Blackwell, 1991) 11.

property called 'memberlessness' which is shared by this set and all the non-sets that exist. I focus on the lack of similarity between the null set and the other memberless objects whereas Rodriguez-Pereyra and Lowe focus on the similarities. Rodriguez-Pereyra sees this similarity as one that is metaphysically useful which I deny. Lowe sees it as a sign of superficial significance. He not only denies that the similarity is real but denies that the null set is real.

On the face of it this seems quite controversial. However, I have already discussed the claim that in an actualist ontology, no set can exist in a world where its members don't exist. This is a fairly plausible thesis and I think that the non-existence of the null set can be inferred from it. The argument is that, as there is no possible world in which the members of the null set exist, there must be no world where the null set exists. Of course those who want to claim that the null set (and hence all the pure sets) exists will deny or modify this claim but it is at least interesting to note that they have to do this. If they merely modify it by adding 'except for the null set' then this is ad hoc. If they deny it then they may be committed to some controversial metaphysics. All in all, the claim that the null set does not exist is not nearly as controversial as it at first seems.

The null set has become a very important issue here. We have seen that acceptance or rejection of Lowe's reductio to support his second premise may turn on whether or not we accept the existence of the null set. In (5.1.4 above) we saw that many people want to draw an analogy between accepting the existence of the null set and accepting the existence of the empty world.

However there is another tack that this argument can take. We have seen that Lowe's rejection of the null set is a key part of his argument for rejecting the empty world. If we think about other philosophers who deny the existence of the

null set, then the obvious candidate is Lewis. But Lewis also denies the existence of the empty world, suggesting that

We needn't be ontologically serious about the null set.⁸⁵

So although I have argued that there is not necessarily a direct link between rejecting these two 'empty' objects, perhaps it is worth considering why there is a correlation between those who reject the two.

The first thing to say is that not everyone who denies metaphysical nihilism denies the existence of the null set. Armstrong⁸⁶ is the obvious example. Secondly Lewis' rejection of the empty world is a direct result of his claim that all that exists are spatio-temporally related objects. Lowe on the other hand is an ersatz and so could be either a nihilist or an anti-nihilist. The question of the null-set actually does some work in his rejection of nihilism, as we have seen above, but it alone does not lead to his rejection of nihilism. So the rejection of the null set, alone, is not sufficient to yield anti-nihilism. Lowe needs several other premises in order to argue against nihilism. So in both cases the rejection of the null set is to some extent independent of the rejection of the empty world and vice versa. Of course, given that both Lowe and Lewis are very systematic philosophers there are links between their rejections of the null set and their other beliefs but there is certainly no necessary connection between denying the empty set and denying the empty world.

Another objection to Lowe is available. Perhaps when we say that numbers or other abstracta are necessary, we mean that *if* anything else exists then numbers

⁸⁵ Ibid. 13.

⁸⁶ Armstrong, *A Combinatorial Theory of Possibility* 11,137.

exist. If we admit that Lowe has shown us that a world with only abstract objects is impossible that does not mean that a world with no objects at all is impossible. It may be that no universals or sets can exist without some concrete object also existing but perhaps there could be a world where none of these exists? This is the question of absolute nihilism (see 6.1 above). What would a world without abstract objects be like? Well, it would probably be a maximally consistent proposition or state of affairs. (This world is incompatible with compositionism so we need only discuss ersatzism in this context.) So if this is a consistent state of affairs then it is a possible world.

Lowe would probably reply to this by using his arguments against mathematical fictionalism. The objectionable part of mathematical fictionalism, according to Lowe (and indeed most opponents of fictionalism) is the claim that mathematical truths are contingent. Absolute nihilism makes mathematics contingent and so is undesirable.

7.5 Premise A4*

(A4)⁸⁷ If there is a world with no concrete* objects then that world has no concrete objects.*

Earlier in this chapter, I said that in order to avoid getting into the tangential question of whether or not concrete objects are infinitely divisible, I would run two parallel arguments. I've been running a version of Baldwin's original argument (A1)-(A3) which we need if, as Lowe suggests, concrete objects do not have an infinite number of parts. I've also been running a version of Rodriguez-Pereyra's improved argument (A1*)-(A3*) which we need if, as Rodriguez-

⁸⁷ My numbering for Rodriguez-Pereyra's extra claim.

Pereyra suggests, concrete objects do have an infinite number of parts. Both arguments seem to have similar fates: the problems pointed out by Lowe and defended by myself against Rodriguez-Pereyra's criticisms are not affected by this question of the divisibility of concrete objects. However, if Rodriguez-Pereyra is right about divisibility, then the premises (A1*) – (A3*) given so far, are not sufficient to yield nihilism. A fourth claim, which I am calling (A4*), is required. The arguments that Rodriguez-Pereyra gave for this claim originally seem to work just as well given my new criterion of concreteness and seem to be compatible with an appropriate account of worlds.

The conclusion of (A1*) - (A3*) is that there is a world, w_{nil} , without concrete* objects. But concrete* objects are not concrete objects. Concrete* objects are concrete, memberless and maximal occupants of connected regions. So is w_{nil} genuinely an empty world – a world with no concrete objects? Yes it is. In w_{nil} there are no concrete, memberless, maximal occupants of spatio-temporal regions i.e. no concrete* objects. This means that there are no maximal occupants of spatio-temporal regions (as any occupant of a spatio-temporal region will be concrete and memberless). (This actually seems more plausible with my spatio-temporal criterion of concreteness than with Rodriguez-Pereyra's criterion.) If there are no maximal occupants of spatio-temporal regions in a world then there are no occupants of spatio-temporal regions in that world. So if in w_{nil} there are no concrete* objects then it seems as though there must be no concrete objects in w_{nil} . So w_{nil} is an empty world.

7.6 One more challenge to nihilism

A final strategy for attacking nihilism is suggested by Van Inwagen.⁸⁸ Having failed to find a convincing modal ontological argument to defeat the nihilist he develops his probability argument. The aim of this argument is not to show that metaphysical nihilism is impossible. Rather he aims only to show that it is incredibly unlikely. In fact he wants to show that it's as unlikely as anything can be. The argument runs:

- (V1) There are some beings;
- (V2) If there is more than one possible world, there are infinitely many;
- (V3) There is at most one possible world in which there are no beings;
- (V4) For any two possible worlds, the probability of their being actual is equal.⁸⁹

If these premises are true then even if nihilism is true – there is an empty possible world – then it still would have been more or less impossible for that world to be actual. This is because there are an infinite number of possible worlds and the probability of any given world being actual is the same as that for any other world being actual (from (V4)). As there are an infinite number of worlds where something exists and at most one where nothing exists, the probability of the one where nothing exists being actual is either zero or infinitely small. If the probability of something being actual is infinitely small then there is a sense in which it is impossible.

If, contra to (V2), there is just one possible world, then nihilism is false as there is no world where there are no concrete beings.

⁸⁸ Van Inwagen, "Why Is There Anything at All?," Van Inwagen, P., *Ontology, Identity and Modality: Essays in Metaphysics* (Cambridge: Cambridge University Press, 2001) 57-71.

⁸⁹ Van Inwagen, "Why Is There Anything at All?," 99. (My numbering.)

The first two premises seem quite plausible. (V1) is indisputable. (V2) seems likely – if we are going to have to invoke any possible worlds it seems as though any finite number will not suffice, so there must be an infinite number of worlds.

(V3) is the claim that all possible worlds with no beings (or I suppose with no concrete beings) are the same world. One could object to this view by claiming that there are indiscernible possible worlds i.e. if each possibility was represented not just by one world but by several or indeed infinitely many exactly identical worlds. There doesn't seem to be any reason to assume this. Lewis⁹⁰ says he is agnostic about it and Divers⁹¹ argues that considerations about economy should lead Lewis to deny the existence of indiscernible worlds. On the ersatz view where worlds are abstract objects in this world, it also seems that there won't be any replica worlds.

Lowe⁹² attacks this third premise claiming that if there is one world with no concrete objects, then there may be more than one world with no concrete objects.

He points out that (V3) is only true on the assumption that all (independent)

⁹⁰ Lewis, *On the Plurality of Worlds* 87.

⁹¹ Divers, "On the Prohibitive Cost of Indiscernible Concrete Possible Worlds." John Divers argues that Lewis has over-looked the importance of quantitative economy. Lewis claims he is agnostic about the existence of duplicates of worlds, but Divers claims this results from his underestimation of the importance of quantitative economy. Divers agrees with Lewis that qualitative economy is more important than quantitative but claims that quantitative economy has a role none the less. This role he sums up as follows "*Q: When but only when competing theories have the same qualitative cost, the theory which has the lowest quantitative cost should be rated cheapest for the purpose of judging the credibility (cost / benefit value) of the theories.*" (p. 388) That is, quantitative economy can be taken into account when you have two theories with equal explanatory power and otherwise equal ontological cost. The two positions in question are a genuine modal realism that posits exactly one possible world for each way this world could have been and any other genuine modal realism that posits more than one possible world for any or all ways this world could have been. They both posit the same kinds of entities and have the same explanatory power but the second option has multiple copies of some entities. According to Q, we can legitimately take into account the greater quantitative cost of the second and hence choose the first. Hence, Lewis need sit on the fence no longer, he can admit that there is only one world corresponding to each way the world could have been.

⁹² Lowe, "Why Is There Anything at All?," 114-5.

abstract objects are necessary objects. However, this may not be the case. It may be that there are two different worlds which contain different objects, none of which are concrete. Of course Lowe doesn't even believe that there is one world with no concrete objects, so he certainly doesn't believe that there is more than one. What he does believe is that if there is one world with no concrete objects then it is not obvious that there is only one.

(V4) is the most controversial premise of Van Inwagen's argument but it is still plausible. It seems implausible to assume that any world is more likely to be actual than any other world.⁹³

So most of the premises of Van Inwagen's argument seem plausible but I think that it is not sufficient to defeat nihilism.⁹⁴ According to Van Inwagen, the world we do live in, let's call it α , is just as unlikely to be actual as the empty world. But α is actual. My argument is that we could replace (V3) with the claim that

(V3') there is at most one world at which P,

where P is a complete specification of the actual way that things are. This would be just as plausible as (V3), and (V1), (V2) and (V4) would retain as much plausibility as they had in the original. However the conclusion of this new argument is that α 's being actual is as unlikely as anything could be. Hence the likelihood of α 's being actual is the same as the likelihood of the empty world's being actual. As α is actual it shows that nihilism is not as problematic as Van Inwagen had intended.

⁹³ There are outlines of arguments against this claim in Ibid.: 113-4. For further discussions of this issue see Nozick, R., *Philosophical Explanations* (Cambridge, MA: Harvard University Press, 1981), Parfit, D., "Why Anything? Why This?," *London Review of Books* 20 (1998).

⁹⁴ An argument similar to this is given in Lowe, "Why Is There Anything at All?," 113-4.

Given that Van Inwagen's argument was supposed to show that the improbability of the empty world's being actual rendered metaphysical nihilism all but impossible, the fact that this world is equally improbable shows that nihilism, if it is a possibility at all, is no more unlikely than the reality we see around us.

So Van Inwagen's argument, if it works at all, shows us that the empty world was no more nor less likely to be actual than this world. If this was meant to convince us of the null world's near-impossibility, then it has not succeeded. Even if we accept the premises and conclusion of Van Inwagen's argument, it only shows us how very unlikely the actuality of the null world is. It does not show us that the null world's actuality is impossible.

7.7 Conclusion

So where does the subtraction argument, and with it, nihilism, stand at the end of this attempt to revise it? My aim in this chapter, remember, is to re-write the subtraction argument updating it to take into account the objections I have made to the previous versions. Specifically, to argue for it using only premises that are compatible with an ersatz view of worlds as an ersatz view is the only fully worked-out account of worlds that is compatible with nihilism. Secondly, to use an appropriate criterion of concreteness - namely the spatio-temporal criterion. So the question is 'can a satisfactory subtraction argument be constructed that takes into account these changes?' I also decided to run this argument without deciding the question about the infinite divisibility of concrete objects. So I have two parallel arguments, one assuming that concrete objects are infinitely divisible and the other assuming that they are not. This should make mine a stronger argument

as there are fewer ways for it to be wrong. And it means that it will not be rejected by philosophers who believe one rather than the other.

The first premise $((A1) \text{ or } (A1^*))^{95}$ seems to hold.

The second premise $((A2) \text{ or } (A2^*))$ is less secure. Even in the original (A2) (or (A2*)) was the weakest premise. This is because it is not one hundred percent guaranteed by Baldwin's argument. We saw above that with my modified criterion of concreteness, the argument for (A2) is even weaker. However I think we can still accept (A2). This is because although the argument for it is not completely convincing, the argument against it, the ontological argument, is even less so. The problems with the ontological argument are well known and Van Inwagen (see 7.3.1 above) has pointed out its reliance on the similarly unconvincing cosmological argument and the principle of sufficient reason. I think it is therefore safe to accept premise (A2) on the basis that it is more plausible and better supported than its denial.

(A3), then, is the crucial premise. This was always the case. I have shown that Rodriguez-Pereyra's defence of nihilism and (A3) against Lowe's anti-nihilist arguments rests on his denial of an ersatz premise, despite the fact that the only fully worked out account of worlds that is compatible with nihilism is an ersatz account. On the other hand, Lowe's anti-nihilist argument seems to hold. Every world contains at least one concrete object where by a 'concrete object' we mean one that exists in time. Lowe's denial of the existence of the null set is not as

⁹⁵ In what follows I refer to (A1), (A2) and (A3) sometimes without also mentioning (A1*), (A2*) and (A3*). This is just for ease of reading and writing. All the claims I make about (A1), (A2) and (A3) are equally plausible for (A1*), (A2*) and (A3*).

implausible as it originally seems to be. But we must remember that Lowe's argument does rely on his Aristotelian realism about universals.

8 CONCLUSION

We've reached the end of our discussion of the two key questions in modal metaphysics. Where have we got to? Is nihilism right or wrong? What have we learnt along the way about possible worlds, nihilism and the metaphysics of modality in general?

I have three aims in this conclusion. Firstly, I will summarise the state of the debate as I see it at the end of this discussion and give my headline results (see 8.1 below). Secondly I will recap the main subsidiary arguments I made along the way, these are my intermediary conclusions (see 8.2 below). Any philosopher who disagrees in some way with my final conclusions will hopefully still accept many of the intermediary conclusions. Finally, I will suggest what directions future debates on nihilism might take and how my results should be incorporated into further work.

8.1 Where are we now? (Main results.)

My final position endorses anti-nihilism. Lowe's arguments against the nihilist are still standing despite Rodriguez-Pereyra's attack. In fact, Lowe's position is now more solid as I have given arguments to support using the temporal criterion of concreteness.

Lowe's arguments are directed against the third premise of the subtraction argument ((A3) or (A3*)) but they also work against nihilism in general. But Lowe's arguments are resting on two pillars and if either of these were to be attacked the whole façade would come tumbling down. These pillars are his Aristotelian realism about universals and, most controversially, his denial of the

existence of the empty set. I have suggested that although Lowe's denial of the empty set is controversial, it follows directly from a conjunction of actualism and a plausible thesis about the existence of sets. What would happen if one of Lowe's pillars is attacked or destroyed? Would it be possible to construct another anti-nihilist argument or are these claims all essential to anti-nihilism? Or would it open the way to constructing a new, stronger argument for nihilism?

So if the subtraction argument is in trouble, what of nihilism? It may be possible to construct another argument for nihilism, or to capture the intuition behind the subtraction argument and express it formally in a different way. The intuition behind the subtraction argument is the claim that because each individual concrete object could have not existed, all concrete objects could have not existed. It is worth noting that the subtraction argument is a conclusion-led argument. Its supporters supported nihilism and so found an argument to support it, as opposed to a premise-led argument where the premises were held anyway and an argument discovered that leads to a new conclusion. This is interesting because it shows us some of the motivation and intuitions behind the subtraction argument. It is there to support nihilism, which Baldwin and Rodriguez-Pereyra see as a plausible position that lacks formal support. So in a way the basic intuition behind the subtraction argument is the idea that nihilism is correct.

However, I have argued (see 5.1 above) that nihilism is not as intuitively plausible as it first appears to be. Previously it might have appeared that Lowe's arguments, for example, are steeped in metaphysical doctrine – that accepting them meant buying into a grand metaphysical scheme – whereas nihilism was 'simple' ontologically and the sort of position that can be accepted, or even assumed, with limited repercussions for the rest of philosophy. I hope that I have shown that this

is not the case. Nihilism has huge metaphysical implications and determines the answers to some of the biggest questions in modal metaphysics for those philosophers who accept it. Specifically it rules out any sort of compositionism about possible worlds. Nihilism, as defended by Rodriguez-Pereyra and Baldwin also rules out the existence of haecceities which in turn limits both the range of ersatz theories available and the sort of modal claims that are true. Finally, some of the intuitive plausibility of nihilism is based on its rejection of a concrete necessary being. But I have shown that Baldwin's argument for this claim is based on his inappropriate criterion of concreteness and all the ontological baggage it brings with it. With my criterion of concreteness, nihilism is on far less solid ground against the attack from the ontological argument.

In discussing whether or not there could be nothing, Nozick says that

... someone who proposes a non-strange answer shows he didn't understand the question.¹

If this is true then I have helped the nihilist out. I have shown that nihilism is not as uncontroversial as it might first appear, it is in fact a much stranger thesis than the nihilists had thought.

8.2 How did we get here? (Subsidiary results.)

As well as my main conclusions there are several interim conclusions which I have argued for during the thesis. Here are the main subsidiary results: (the numbers in brackets are the chapters where these claims are defended)

- Spinozism (the claim that things could not have been different) is false. (1)

¹ Nozick, *Philosophical Explanations* 16.

- If Melia's attack on Lewis' parsimony is viable at all, then Melia's argument is only effective against the argument from the quantitative / qualitative distinction, not against the argument that the price is right. (2)
- An explanation of what 'of a kind' means may be implicit in Lewis' ontology. (2)
- We shouldn't make unreflective use of principles of ontological economy in the study of ontology itself. (2)
- The kind of evidence required for asserting the existence of something is not just determined by the kind of object involved but also by the kind of evidence that object can be expected to produce. (2)
- Linguistic ersatzism, in its reductionist form, cannot tackle my question (ii), the nihilism question, in an objective way. (3)
- The attempt by the reductionist linguistic ersatzer to reduce possibilities to language is an attempt to reduce in the wrong direction. (3)
- Rosen's version of modal fictionalism begs the question of metaphysical nihilism. (3)
- Given that the problematic intrinsic / relational distinction forms part of Baldwin and Rodriguez-Pereyra's account of concreteness, they need to give an account of intrinsicness and reasons for accepting that particular account. (4)
- Even if 'having x_1 as its only member' is an intrinsic property of $\{x_1\}$ it doesn't follow that 'being the only member of $\{x_1\}$ ' is an intrinsic property of x_1 . (4)

- Space-time regions are not sets of space-time points (as Rodriguez-Pereyra claims) but are sums of space-time points. (4)
- Theories of possible worlds can be categorised as compositionalist, containerist and ersatz. (5)
- This way of categorising theories of possible worlds is more relevant to discussions of metaphysical nihilism than either the possibilism / actualism dichotomy or the Lewisian / ersatz dichotomy. (5)
- Nihilism is incompatible with the compositionalist account of worlds. (5)
- The subtraction argument involves tacit acceptance of the container view of worlds. (5)
- The container view (in conjunction with metaphysical nihilism) requires absolutism about space and time. (5)
- Metaphysical nihilism is *prima facie* compatible with the ersatz view of worlds. (5)
- The subtraction argument in all its published forms is incompatible with most ersatz views and compatible only with those ersatz views that do not produce a very robust account of modality. (5)
- By changing the criterion of concreteness used in the subtraction argument it is possible to develop an argument for nihilism that allows for a more robust ersatz account of worlds. (5)
- If worlds are sets, it seems hard to explain their structure. (5)
- A sum* is not a genuine class of entity or ontological category. (5)

- Rodriguez-Pereyra's characterisation of modal realism as the claim that 'other worlds exist and are of a kind with the actual world' may actually be accepted by the opponents of Lewisian modal realism. (5)
- Given that Rodriguez-Pereyra's account of worlds is so different from that of Lewis, it is not obvious that we can make these large changes without affecting the power and usefulness of the theory. (5)
- Rodriguez-Pereyra's account of worlds is extremely unparsimonious. (5)
- Metaphysical nihilism is not a common sense view, agnostic between accounts of possible worlds, or a basic hypothesis, which we should hold on to until persuaded otherwise. (5)
- A commitment to the non-existence of a given kind of entity is just as serious as a commitment to their existence. (5)
- Neither Lowe, Baldwin nor Rodriguez-Pereyra give any reasons for using the criteria of concreteness they do use. (6,7)
- Given that metaphysical nihilism is an issue about the nature of concrete objects, any thorough discussion of it should specify why a given account of concreteness is being used. (6)
- To avoid circularity, the appropriate criterion of concreteness should be chosen without assuming either metaphysical nihilism or its denial. (6)
- The proponents of metaphysical nihilism have been using an inappropriate criterion of concreteness. (6)
- Failure to satisfy the identity of indiscernibles is not a criterion of particularity. (6)

- Issues about metaphysics are prior to issues about philosophy of language.
(3,6)
- The temporal criterion of concreteness is right for discussions of metaphysical nihilism. (6)
- Metaphysical nihilism, the temporal account of concreteness and an ersatz account of worlds are *prima facie* compatible. (6)
- The denial of metaphysical nihilism is also *prima facie* compatible with the conjunction of the temporal account of concreteness and an ersatz account of worlds. (6)
- Premise (A2) of the subtraction argument is far less plausible when taken in conjunction with the temporal criterion of concreteness than with Baldwin and Rodriguez-Pereyra's criteria. This shows Baldwin's undefended criterion of concreteness is doing some work in his argument. (7)
- (A2) is nonetheless more plausible than its denial. (7)
- The only fully worked out theory of possible worlds that is compatible with nihilism is ersatzism. Yet Rodriguez-Pereyra defends nihilism by attacking Lowe's first premise using a suppressed anti-ersatz premise. (7)
- Rejecting (or accepting) the existence of the empty world is not equivalent to rejecting (or accepting) the existence of the empty set. (7)
- If we accept that no set can exist in a world where its members don't exist (on an actualist ontology) then denying the existence of the null set seems quite plausible. (7)

- Van Inwagen's probability argument shows that the empty world is no more nor less likely than the actual world. (7)
- If we use the appropriate criterion of concreteness and account of worlds, Lowe's anti-nihilist arguments are ultimately more persuasive than those of the nihilists. (7)
- The proponents of metaphysical nihilism have not given sufficient support to their position. The reason for this is that, in their published works, they (especially Baldwin) sought to consider the second of my two questions (is there an empty possible world?) without sufficient consideration of my first question (what are possible worlds?)² (1,4,5,7)
- That these two questions need to be considered not singly but as two inter-related issues. (1,3,5,7)
- Neither of these two questions is primary or foundational, some sort of reflective equilibrium between them is desirable. (3,5,6,7)

8.3 Where to go from here?

If someone wants to defend nihilism, then either (i) they will need to come up with an argument against Lowe that is compatible with ersatzism or (ii) they will have to develop a whole new account of possible worlds, possibly along the lines suggested by Rodriguez-Pereyra and show that it is compatible with nihilism and can do everything that we expect from an account of worlds and doesn't have any other problematic consequences. They should also use the temporal criterion of

² This issue is discussed by Rodriguez-Pereyra in his (unpublished) Rodriguez-Pereyra, "Modal Realism and Metaphysical Nihilism" but is not discussed by Baldwin.

concreteness (unless they can give sound reasons why some other criterion is relevant).

If, on the other hand, we want to further defend the anti-nihilist position, there are two main areas I think need to be looked into. The first is to examine the consequences of Rodriguez-Pereyra's new account of worlds. We need to look at how this sketch of a theory of worlds could be cashed out so as to do everything that we expect from an account of possible worlds and examine whether or not it is compatible with nihilism once it has been fully worked out.

The other area for debate is the metaphysics of the empty set. As it stands Lowe's anti-nihilist argument rests on his controversial rejection of the empty set. Could an anti-nihilist argument be developed without this assumption? Can further arguments be given in support of this assumption or against this assumption? Further debate on this issue may prove valuable to future work on metaphysical nihilism.

9 BIBLIOGRAPHY

- Adams, R. M. "Theories of Actuality." *Nous* 8 (1974): 211-31.
- . "Primitive Thisness and Primitive Identity." *Journal of Philosophy* 76 (1979): 5-25.
- . "Actualism and Thisness." *Synthese* 49 (1981): 3-42.
- Armstrong, D. M. *A Combinatorial Theory of Possibility*. New York: Cambridge University Press, 1989.
- Baldwin, T. "There Might Be Nothing." *Analysis* 56 (1996): 231-8.
- . "Modal Fictionalism and the Imagination." *Analysis* 58 (1998): 72-5.
- . *Contemporary Philosophy: Philosophy in English since 1945*. Oxford: Oxford University Press, 2001.
- . "Kantian Modality." *Aristotelian Society Supplementary Volume* (2002): 1-24.
- Barnes, E. C. "Ockham's Razor and the Anti-Superfluity Principle (Principle of Parsimony)." *Erkenntnis* 53 (2000): 353-74.
- Barrow, J. D., and Tippler, F. J. *The Anthropic Cosmological Principle*. Oxford: Clarendon Press, 1986.
- Bigelow, J., and Pargetter, R. "Beyond the Blank-Stare." *Theoria* 53 (1987): 97-114.
- Black, M. "The Identity of Indiscernibles." *Mind* 61 (1952): 153-64.
- Black, R. "Against Quidditism." *Australasian Journal of Philosophy* 78 (2000): 87-104.

- Blackburn, S. "Filling in Space." *Analysis* 50 (1990).
- Bricker, P. "Reducing Possible Worlds to Language." *Philosophical Studies* 52 (1987): 331-55.
- Carlson, E., and Olsson, E. J. "Is Our Existence in Need of Further Explanation?" *Inquiry* 41 (1998): 255-75.
- . "The Presumption of Nothingness." *Ratio* XIV (2001): 203-22.
- Chalmers, D. J. *The Conscious Mind: In Search of a Fundamental Level*. Oxford: Oxford University Press, 1996.
- Chisholm, R. M. *On Metaphysics*. Minneapolis: University of Minnesota Press, 1989.
- . "Ontologically Dependent Entities." *Philosophy and Phenomenological Research* 54 (1994): 499-507.
- . *A Realist Theory of Categories*. Cambridge: Cambridge University Press, 1996.
- Coggins, G. "World and Object: Metaphysical Nihilism and Three Accounts of Worlds." *Proceedings of the Aristotelian Society* (2003 forthcoming).
- Colyvan, M. "Conceptual Contingency and Abstract Existence." *Philosophical Quarterly* 50 (2000): 87-91.
- Corey, M. A. *God and the New Design: The Anthropic Design Argument*. Lanham, Maryland: Rowman & Littlefield, 1993.
- Cresswell, J. *Semantical Essays*. London: Kluwer Academic Publishers, 1988.
- Cruse, D. A. "On the Transitivity of the Part-Whole Relation." *Journal of Linguistics* 15 (1979): 29-38.

- Daly, C. "Pluralist Metaphysics." *Philosophical Studies* 87 (1997): 185-206.
- Davies, M., and Humberstone, L. "Two Notions of Necessity." *Philosophical Studies* 38 (1980): 1-30.
- DeWitt, B., and Graham, N., eds. *The Many-Worlds Interpretation of Quantum Mechanics*. Princeton: Princeton University Press, 1973.
- Divers, J. "On the Prohibitive Cost of Indiscernible Concrete Possible Worlds." *Australasian Journal of Philosophy* 72 (1994): 384-9.
- . "A Modal Fictionalist Result (Plurality of Worlds Hypothesis)." *Nous* 33 (1999): 317-46.
- Duggan, T. J. "Hume on Causation." In *Analysis and Metaphysics*, edited by Lehrer, K. Dordrecht: D. Reidel Publishing Company, 1975.
- Earman, J. *World Enough and Space-Time*. London: MIT Press, 1989.
- Ehman, R. R. "On the Possibility of Nothing." *Review of Metaphysics* 17 (1963): 205-13.
- Esfeld, M. Review of *Kantian humility. Our ignorance of things in themselves* by Langton, Rae *Erkenntnis* 54 (2001): 399-403.
- Field, H. *Science without Numbers*. Oxford: Basil Blackwell, 1980.
- . *Realism, Mathematics and Modality*. New York: Blackwell, 1989.
- Fine, K. "Plantinga on the Reduction of Possibilist Discourse." In *Alvin Plantinga Profiles*, edited by Tomberlin, J. E. and Van Inwagen, P. Dordrecht: D. Reidel Publishing Co., 1985.
- Fine, K., and Prior, A. N. *Worlds, Times and Selves*. Amherst, MA: University of Massachusetts Press, 1977.

- Fitch, G. W. "In Defence of Aristotelian Actualism." In *Philosophical Perspectives 10*, edited by Tomberlin, J. E., 53-71. Oxford: Blackwell, 1996.
- Forrest, P. "Occam's Razor and Possible Worlds." *Monist* 65 (1982): 456-64.
- Forrest, P., and Armstrong, D. M. "An Argument against David Lewis' Theory of Possible Worlds." *Australasian Journal of Philosophy* 62 (1984): 164-8.
- Goodman, N. "A World of Individuals." In *The Problem of Universals*, edited by Landesman, C. New York: Basic Books, Inc., 1971.
- Grim, P. *The Incomplete Universe*. Cambridge, MA.: MIT Press, 1991.
- Grossman, R. *The Categorical Structure of the World*. Bloomington: Indiana University Press, 1983.
- . *The Existence of the World*. London: Routledge, 1992.
- Grover, S. "Cosmological Fecundity (Various Responses to the Question 'Why Does Our Universe Exist?')." *Inquiry* 41 (1998): 277-99.
- Hale, B. *Abstract Objects*. New York: Blackwell, 1988.
- . "Absolute Necessities." In *Philosophical Perspectives 10*, edited by Tomberlin, J. E., 93-117. Oxford: Blackwell, 1996.
- Hale, B., and Wright, C., eds. *A Companion to the Philosophy of Language*. Oxford: Blackwell, 1997.
- Hart, W. D., ed. *The Philosophy of Mathematics*. Oxford: Oxford University Press, 1996.
- Hazen, A. "One of the Truths About Modality." *Analysis* 39 (1979): 1-3.

- Healey, R. *Reduction, Time and Reality*. Cambridge: Cambridge University Press, 1981.
- Hirsh, E. *The Concept of Identity*. Oxford: Oxford University Press, 1982.
- Hoffman, J., and Rosenkrantz, G. *Substance among Other Categories*. New York: Cambridge University Press, 1994.
- Holton, R. "Dispositions All the Way Round."
- Honderich, T., and Burnyeat, M. *Philosophy as It Is*. Harmondsworth: Penguin, 1979.
- Hughes, C. "Three Cosmological Arguments." *Ratio XIII* (2000): 213-33.
- Humberstone, L. "From Worlds to Possibilities." *Journal of Philosophical Logic* 10 (1981): 313-39.
- Jackson, F. *From Metaphysics to Ethics: A Defence of Conceptual Analysis*. Oxford: Clarendon Press, 1998.
- Kant, I. *Critique of Pure Reason*. Translated by Kemp Smith, N. London: Macmillan and Co., 1950.
- Kaplan, D. "How to Russell a Frege-Church." *Journal of Philosophy* 72 (1975): 716-29.
- Kneale, W. C. *Probability and Induction*. Oxford: Clarendon Press, 1949.
- Kripke, S. *Naming and Necessity*. Oxford: Blackwell, 1980.
- Kusch, M. "On 'Why Is There Something Rather Than Nothing?'" *American Philosophical Quarterly* 27 (1990): 253-7.
- Landesman, C., ed. *The Problem of Universals*. New York: Basic Books, Inc.,

1971.

Lehrer, K., ed. *Analysis and Metaphysics*. Dordrecht: D. Reidel Publishing Company, 1975.

Lewis, D. *Counterfactuals*. Oxford: Blackwell, 1973.

———. "Anselm and Actuality." In *Philosophical Papers 1*, edited by Lewis, D., 10-25. Oxford: Oxford University Press, 1983.

———. *Philosophical Papers*. Vol. 1. Oxford: Oxford University Press, 1983.

———. "Extrinsic Properties." *Philosophical Studies* 44 (1983): 197-200.

———. *On the Plurality of Worlds*. Oxford: Blackwell, 1986.

———. "A Subjectivist's Guide to Objective Chance." In *Philosophical Papers 2*, edited by Lewis, D., 83-132. Oxford: Oxford University Press, 1986.

———. *Philosophical Papers 2*. Oxford: Oxford University Press, 1986.

———. *Parts of Classes*. Oxford: Blackwell, 1991.

———. "Humean Supervenience Debugged." *Mind* 103 (1994): 473-90.

———. "Maudlin and Modal Mystery." *Australasian Journal of Philosophy* 74 (1996): 683-4.

———. *Papers in Metaphysics and Epistemology*. Cambridge: Cambridge University Press, 1999.

———. "Truthmaking and Difference-Making." *Nous* 35 (2001): 602-15.

Lewis, D., and Langton, R. "Defining 'Intrinsic'." *Philosophy and Phenomenological Research* 58 (1998): 333-45.

Linsky, B., and Zalta, E. N. "In Defence of the Simplest Quantified Modal

- Logic." In *Philosophical Perspectives* 8, edited by Tomberlin, J. E., 431-58. Atascadero: Ridgeview Publishing Co., 1994.
- . "In Defence of the Contingently Non-Concrete." *Philosophical Studies* 84 (1996): 283-94.
- Lipton, P. *Inference to the Best Explanation*. London: Routledge, 1991.
- Loffler, W. "On Almost Bare Possibilia: Reply to Timothy Williamson." *Erkenntnis* (1998): 275-9.
- Loux, M. J. *Universals and Particulars: Readings in Ontology*. Garden City, NY: Anchor Books, 1976.
- , ed. *The Possible and the Actual*. London: Cornell University Press, 1979.
- . *Metaphysics*. London: Routledge, 1998.
- Lowe, E. J. *Kinds of Being*. Oxford: Basil Blackwell, 1989.
- . "Why Is There Anything at All?: II." *Aristotelian Society Supplementary Volume* (1996): 111-20.
- . "Objects and Criteria of Identity." In *The Companion to the Philosophy of Language*, edited by Hale, B. and Wright, C., 613-33. Oxford: Blackwell, 1997.
- . *The Possibility of Metaphysics Substance, Identity, and Time*. Oxford: Clarendon Press, 1998.
- . "Metaphysical Nihilism and the Subtraction Argument." *Analysis* 62 (2002): 62-73.
- . *A Survey of Metaphysics*. Oxford: Oxford University Press, 2002.

- Lucas, J. R. *The Concept of Probability*. Oxford: Clarendon Press, 1970.
- Lycan, W. G. "The Trouble with Possible Worlds." In *The Possible and the Actual*, edited by Loux, M. J. London: Cornell University Press, 1979.
- . Review of *On the Plurality of Worlds* by Lewis, D. *Journal of Philosophy* 85 (1988): 42-7.
- Lycan, W. G., and Shapiro, S. "Actuality and Essence." In *Midwest Studies in Philosophy XI*, edited by French, P. A., Uehling, T. E. and Wettstein, H. K., 343-77. Minneapolis: University of Minnesota Press, 1986.
- Maddy, P. "Perception and Mathematical Intuition." In *The Philosophy of Mathematics*, edited by Hart, W. D., 114-41. Oxford: Oxford University Press, 1996.
- Markosian, N. Review of *Questions of Time and Tense* LePoidevin, Robin, ed. *Nous* 35 (2001): 616-29.
- Maudlin, T. "On the Impossibility of David Lewis' Modal Realism." *Australasian Journal of Philosophy* 74 (1996): 669-82.
- McBride, F. "Could Armstrong Have Been a Universal." *Mind* 108 (1999).
- McGinn, C. "Modal Reality." In *Reduction, Time and Reality*, edited by Healey, R. Cambridge: Cambridge University Press, 1981.
- McMichael, A. "A Problem for Actualism About Possible Worlds." *Philosophical Review* 92 (1983): 49-66.
- McNamara, P. "Does the Actual World Actually Exist?" *Philosophical Studies* 69 (1993): 58-81.
- Melia, J. "A Note on Lewis' Ontology." *Analysis* 52 (1992): 191-2.

- . "On What There's Not." *Analysis* 55 (1995): 223-9.
- . "Field's Programme: Some Interference." *Analysis* 58 (1998): 63-71.
- . "Reducing Possibilities to Language." *Analysis* 61 (2001): 19-29.
- Mellor, D. H. *The Facts of Causation*. London: Routledge, 1995.
- . "Possibility, Chance and Necessity." *Australasian Journal of Philosophy* 78 (2000): 16-27.
- Menzel, C. "Actualism, Ontological Commitment and Possible World Semantics." *Synthese* 85 (1990): 335-89.
- . "Possibilism and Object Theory." *Philosophical Studies* 69 (1993): 195-208.
- Milne, P. "Modal Metaphysics and Comparatives." *Australasian Journal of Philosophy* 70 (1992): 248-62.
- Mondadori, F., and Morton, A. "Modal Realism: The Poisoned Pawn." *Philosophical Review* 85 (1976): 3-20.
- Nolt, J. E. "Sets and Possible Worlds." *Philosophical Studies* 44 (1983): 21-36.
- Noonan, H., W. "In Defence of the Letter of Fictionalism." *Analysis* 54 (1994): 133-9.
- Nozick, R. *Philosophical Explanations*. Cambridge, MA: Harvard University Press, 1981.
- Parfit, D. "Why Anything? Why This?" *London Review of Books* 20 (1998): 24-7.
- Parsons, T. *Non-Existent Objects*. London: Yale University Press, 1980.

Paseau, A. "The Subtraction Argument Does Not Add Up." *Analysis* 62 (2002): 73-5.

Plantinga, A. "De Dicto and De Re." *Nous* 2 (1969): 248-58.

———. "World and Essence." *Philosophical Review* 79 (1970): 461-92.

———. *The Nature of Necessity*. Oxford: Clarendon Press, 1974.

———. "Actualism and Possible Worlds." In *The Possible and the Actual*, edited by Loux, M. J. London: Cornell University Press, 1979.

———. "Self-Profile." In *Alvin Plantinga Profiles*, edited by Tomberlin, J. E. and Van Inwagen, P. Dordrecht: D. Reidel Publishing Co., 1985.

———. "Replies to My Colleagues." In *Alvin Plantinga: Profiles*, edited by Tomberlin, J. E. and Van Inwagen, P., 313-96. Dordrecht: D. Reidel, 1985.

———. "Two Concepts of Modality: Modal Realism and Modal Reductionism." In *Philosophical Perspectives 1: Metaphysics*, edited by Tomberlin, J. E., 189-231. Atascadero: Ridgeview Publishing Co., 1987.

Pollock, J. L. "Plantinga on Possible Worlds." In *Alvin Plantinga Profiles*, edited by Tomberlin, J. E. and Van Inwagen, P. Dordrecht: D. Reidel Publishing Co., 1985.

Pruss, A. R. "The Cardinality Objection to David Lewis's Modal Realism." *Philosophical Studies* 104 (2001): 169-78.

Quine, W. V. O. "On What There Is." In *From a Logical Point of View*. Cambridge, MA: Harvard University Press, 1953.

———. *From a Logical Point of View*. Edited by Quine, W. V. O. Cambridge,

- MA: Harvard University Press, 1961.
- Quinton, A. *The Nature of Things*. London: Routledge, 1973.
- Rawls, J. *A Theory of Justice*. Oxford: Oxford University Press, 1972.
- Rescher, N. "How Many Possible Worlds Are There?" *Philosophy and Phenomenological Research* 59 (1999): 403-20.
- Richards, T. "The Worlds of David Lewis." *Australasian Journal of Philosophy* 53 (1975): 105-18.
- Roberts, J. "Lewis, Carroll, and Seeing through the Looking Glass." *Australasian Journal of Philosophy* 70 (1998): 426-38.
- Rodriguez-Pereyra, G. "There Might Be Nothing: The Subtraction Argument Improved." *Analysis* 57 (1997): 159-66.
- . "Lowe's Argument against Nihilism." *Analysis* 60 (2000): 334-40.
- . "Modal Realism and Metaphysical Nihilism." Paper presented at the Joint Session, York 2001.
- . "Metaphysical Nihilism Defended: Reply to Lowe and Paseau." *Analysis* 62 (2002): 172-80.
- Rosen, G. "Modal Fictionalism." *Mind* 99 (1990).
- . "A Problem for Fictionalism About Possible Worlds." *Analysis* 53 (1993): 71-81.
- Rosenkrantz, G. Review of *The Possibility of Metaphysics* by Lowe, E. J. *Philosophy and Phenomenological Research* LXIV (2002): 728-36.
- Salmon, N. "Existence." In *Philosophical Perspectives 1*, edited by Tomberlin, J.

- E., 49-108. Atascadero: Ridgeview Publishing Co., 1987.
- . "The Logic of What Might Have Been." *Philosophical Review* XCVIII (1989): 3-34.
- Shalkowski, S. A. Review of *The Possibility of Metaphysics* by Lowe, E. J. *Philosophical Books* 41 (2000): 275-8.
- Simons, P. *Parts: A Study in Ontology*. Oxford: Clarendon Press, 1987.
- . "Whose Fault? The Origins and Evitability of the Analytic-Continental Rift." *International Journal of Philosophical Studies* 9 (2001): 295-311.
- Skyrms, B. "Possible Worlds, Physics and Metaphysics." *Philosophical Studies* 30 (1976): 323-32.
- Spinoza, B. *Ethic*. Translated by Hale White, W. Oxford: Oxford University Press, 1927.
- Stairs, A. Review of *On the Plurality of Worlds* by David Lewis *Philosophy and Phenomenological Research* 49 (1988): 333-52.
- Stalnaker, R. C. "Possible Worlds." In *Philosophy as It Is*, edited by Honderich, T. and Burnyeat, M. Harmondsworth: Penguin, 1979.
- . "Possible Worlds and Situations." *Journal of Philosophical Logic* 15 (1986).
- Taylor, R. *Metaphysics*. Englewood Cliffs, New Jersey: Prentice Hall, 1992.
- Teichman, R. *Abstract Entities*. New York: St. Martin's Press, 1992.
- Thommason, A. L. *Fiction and Metaphysics*. Cambridge: Cambridge University Press, 1999.

- Tomberlin, J. E. "Actualism or Possibilism?" *Philosophical Studies* 84 (1996): 263-81.
- Tomberlin, J. E., and McGuinness, F. "Troubles with Actualism." In *Philosophical Perspectives* 8, edited by Tomberlin, J. E. Atascadero: Ridgeview Publishing Co., 1994.
- Tomberlin, J. E., and Van Inwagen, P., eds. *Alvin Plantinga: Profiles*. Dordrecht: D. Reidel, 1985.
- Unger, P. "Minimizing Arbitrariness: Towards a Metaphysics of Infinitely Many Isolated Concrete Worlds." In *Midwest Studies in Philosophy*, edited by French, P. A., Uehling, T. E. and Wettstein, H. K., 29-51. Minneapolis: University of Minnesota Press, 1984.
- Van Fraassen, B. "The Only Necessity Is Verbal Necessity." *Journal of Philosophy* 74 (1977): 71-85.
- . *Quantum Mechanics: An Empiricist View*. Oxford: Clarendon Press, 1991.
- . "'World' Is Not a Count Noun." *Nous* 29 (1995): 139-57.
- . "Against Analytic Metaphysics." Paper presented at the Philosophy Department Research Seminar, University of Durham, May 2001.
- . *The Empirical Stance*. New Haven: Yale University Press, 2002.
- Van Inwagen, P. "Ontological Arguments." *Nous* 11 (1977): 375-95.
- . "Indexicality and Actuality." *Philosophical Review* 89 (1980): 403-36.
- . "Two Concepts of Possible Worlds." In *Midwest Studies in Philosophy* XI, edited by French, P. A., Uehling, T. E. and Wettstein, H. K., 185-214.

- Minneapolis: University of Minnesota Press, 1986.
- . *Metaphysics*. Boulder, Colorado: Westview Press, 1993.
- . *God, Knowledge and Mystery*. London: Cornell University Press, 1995.
- . "Why Is There Anything at All?: I." *Aristotelian Society Supplementary* Volume (1996): 95-110.
- . *Ontology, Identity and Modality: Essays in Metaphysics*. Cambridge: Cambridge University Press, 2001.
- Wahl, R. "Some Consequences of Possibilism." *Australasian Journal of Philosophy* 65 (1987): 427-33.
- White, M. J. "Plantinga and the Actual World." *Analysis* 37 (1977): 97-104.
- Williams, C. J. F. *What Is Existence?* Oxford: Clarendon Press, 1981.
- Williams, D. C. "Dispensing with Existence." *Journal of Philosophy* 59 (1962): 748-63.
- . *The Principles of Empirical Realism*. Springfield, Ill.: Chares C. Thomas, 1966.
- Williamson, T. "Bare Possibilia." *Erkenntnis* 48 (1998): 257-73.
- Wright, C. "Why Numbers Can Believably Be: A Reply to Hartry Field." *Revue Internationale de Philosophie* 42 (1988): 425-73.
- Wright, C., and Hale, B. "Nominalism and the Contingency of Abstract Objects." *Journal of Philosophy* (1992): 111-35.
- Yablo, S. Review of *The Metaphysics of Modality* by Forbes, Graeme *Journal of Philosophy* 85 (1988): 329-37.

———. "Is Conceivability a Guide to Possibility." *Philosophy and Phenomenological Research* 53 (1993): 1-42.

Zimmerman, D. W. "Theories of Masses and Problems of Constitution." *Philosophical Review* 104 (1995): 53-111.

———. "Could Extended Objects Be Made out of Simple Parts? An Argument for Atomless Gunk." *Philosophy and Phenomenological Research* 56 (1996): 1-29.